Deeper into Math



Teachers on Wheels Inc

Thomas V. C. Dawe

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Teachers on Wheels Inc **Thomas V. C. Dawe**

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Deeper into Math Pretest

If you are having trouble with the pretest, you may need to practice addition and subtraction. Please refer to *Living Math*, a Teachers on Wheels publication.

Add the numbers.

355 + 623	881 + 6	515 + 411	271 + 308
588 + 313	658 + 201	869 + 130	358 + 611
951 + 28	617 + 342	501 + 98	531 + 218

Subtract the numbers.

725 - 481	658 - 471	648 - 542	948 - 715
634 - 63	558 - 253	726 - 66	834 - 8
617 - 542	453 - 374	768 - 364	732 - 378
843 - 586	947 - 871	433 - 278	556 - 374

See answers page 135

Multiplication

In math, the "x" is used to signal multiplication. The final answer to a multiplication problem is called the *product*.

Examples:

For 2 x 2 ,

One would say "two times two".

This means 2 + 2.

The product is 4.

For 3 x 5 ,

One would say "three times five".

This means 5 + 5 + 5.

The product is 15.



For 4 x 6 ,

One would say "four times six".

This means 6 + 6 + 6 + 6.

The product is 24.

Using a Multiplication Table

See Addendum I for multiplication table *(Page 134)*

Example: 7 x 5

Step 1

Find the 7th row.

X	0	1	2	3	4	5	6	7	8	9
0	0	0	0	0	0	0	0	0	0	0
1	0	1	2	3	4	5	6	7	8	9
2	0	2	4	6	8	10	12	14	16	18
3	0	3	6	9	12	15	18	21	24	27
4	0	4	8	12	16	20	24	28	32	36
5	0	5	10	15	20	25	30	**35**	40	45
6	0	6	12	18	24	30	36	42	48	54
7	0	7	14	21	28	35	42	49	56	63
8	0	8	16	24	32	40	48	56	64	72
9	0	9	18	27	36	45	54	63	72	81

Step 2

Find the 5th column.

Step 3

Find the product where the row and the column cross.

The product is 35

Remember



The product for any number multiplied by zero is always zero.

2 x 0 = 0 0 x 4 = 0 8 x 0 = 0

Multiply the numbers.

6	1	5	0	3
x 9	x 4	x 2	x 1	x 4
7	4	2	9	5
x 7	x 9	x 1	x 9	x 4
9	8	1	1	2
x 5	x 1	x 3	x 2	x 2

9 x 4	3 x 3	0 x 4	9 x 8	6 x 2
9 x 7	3 x 2	7 x 0	4 x 8	6 x 8
9 x 2	6 x 4	1 x 5	7 x 6	4 x 2
1 x 8	7 x 2	8 x 2	2 x 0	4 x 1
1 x 7	2 x 3	6 x 7	4 x 5	7 x 5
1 x 6	2 x 9	2 x 8	5 x 1	3 x 9

Real Life Math

Diane works as a fruit farmer. She sends large sacks of apples to the local market by truck. There are 2 shipments per week. How many shipments would Diane send in 4 weeks?

At the market, apples are put in baskets for display. There are 6 apples in each basket. How many apples would be needed to fill 9 baskets?



Multiplying in the Tens

To multiply numbers in the tens:

Example

$$\begin{array}{r} 43 \\ \times\ 2 \\ \hline \end{array}$$

Step 1

Multiply the ones.

$3 \times 2 = 6$

Step 2

Fill in the ones place.

$$\begin{array}{r} \mathbf{43} \\ \times\ 2 \\ \hline 6 \end{array}$$

Step 3

Multiply the tens by the bottom number.

$4 \times 2 = 8$

Step 4

Fill in the tens place.

$$\begin{array}{r} \mathbf{43} \\ \times\ 2 \\ \hline 86 \end{array}$$

The final answer is 86.

Multiply the numbers.

62 x 1	14 x 2	32 x 4	42 x 1	93 x 0
24 x 2	13 x 3	71 x 3	28 x 1	21 x 6
83 x 3	12 x 4	41 x 1	30 x 3	83 x 2
73 x 2	23 x 3	32 x 4	22 x 0	52 x 4
91 x 7	62 x 3	11 x 0	99 x 1	42 x 3
24 x 1	15 x 1	34 x 2	41 x 4	97 x 0

Multiplying and Carrying in the Tens

Example

$$\begin{array}{r} 27 \\ \times\ 3 \\ \hline \end{array}$$

Step 1

Multiply the ones.

$7 \times 3 = 21$

Step 2

Fill in the ones place.

$$\begin{array}{r} \mathbf{27} \\ \times\ 3 \\ \hline 1 \end{array}$$

Step 3

Carry the tens.

$$\begin{array}{r} (2) \\ 27 \\ \times\ 3 \\ \hline 1 \end{array}$$

Step 4

Multiply the tens by the bottom number.

$2 \times 3 = 6$

Step 5

Add up the tens.

$2 + 6 = 8$

Step 6

Fill in the tens place.

$$\begin{array}{r} 27 \\ \times\ 3 \\ \hline (8)\ 1 \end{array}$$

The final answer is 81.

Multiply the numbers.

46 x 2	53 x 1	32 x 3	12 x 2	52 x 0
39 x 2	15 x 6	31 x 0	80 x 0	23 x 2
14 x 3	58 x 1	26 x 3	29 x 1	83 x 0
43 x 2	23 x 4	32 x 3	22 x 4	52 x 1
91 x 0	22 x 3	11 x 0	99 x 1	42 x 2
24 x 4	15 x 6	17 x 4	41 x 2	96 x 0

Real life Math

Mark sells radios. He often sells 25 radios per week. How many radios would Mark expect to sell in 3 weeks?

Each radio sells for $39. What would be the cost for 2 radios?





Multiplication Example

Example 76
x 5

Step 1

Multiply the ones.

6 x 5 = 30

Step 2

Fill in the ones place.

76
x 5
0

Step 3

Carry the tens

3

76
x 5
0

Step 4

Multiply the tens by the bottom number.

7 x 5 = 35

Step 5

Add up the tens

3 + 35 = 38

Step 6

Fill in the tens (and hundreds)

27
x 3
0
38

The final answer is 380.

Multiply the numbers.

96 x 2	54 x 5	16 x 1	47 x 7	11 x 2
46 x 1	45 x 6	23 x 5	24 x 9	92 x 7
18 x 6	42 x 6	64 x 8	25 x 1	44 x 8
83 x 5	30 x 3	93 x 7	47 x 6	18 x 4
74 x 0	33 x 1	51 x 8	10 x 6	93 x 9
59 x 9	73 x 4	14 x 2	60 x 4	93 x 7

Real Life Math

Jim is a carpenter. He goes to the hardware store to buy some boxes of nails. Each box contains 52 nails. Jim buys 4 boxes. How many nails does he have?

Jim often uses 9 boxes of nails per week. How many nails should he expect to use in a week?



Multiplying in the Hundreds

Example

$$\begin{array}{r} 678 \\ \times\ 7 \\ \hline \end{array}$$

Step 1

Multiply the ones.

$8 \times 7 = 56$

Step 2

Fill in the ones place.

$$\begin{array}{r} 678 \\ \times 7 \\ \hline 6 \end{array}$$

Step 3

Carry the tens.

$$\begin{array}{r} 5 \\ 678 \\ \times\ 7 \\ \hline 6 \end{array}$$

Step 4

Multiply the tens by the bottom number.

$7 \times 7 = 49$

Step 5

Add up the tens.

$5 + 49 = 54$

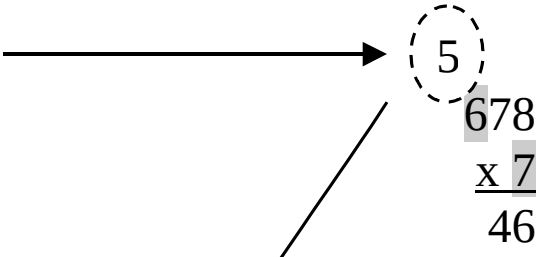
Step 6

Fill in the tens place.

$$\begin{array}{r} 678 \\ \times\ 7 \\ \hline 46 \end{array}$$

Step 7

Carry the hundreds.



Step 8

Multiply the hundreds by the bottom number.

6 x 7 = 42

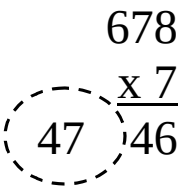
Step 9

Add up the hundreds.

5 + 42 = 47

Step 10

Fill in the hundreds place.



The final answer is 4746.

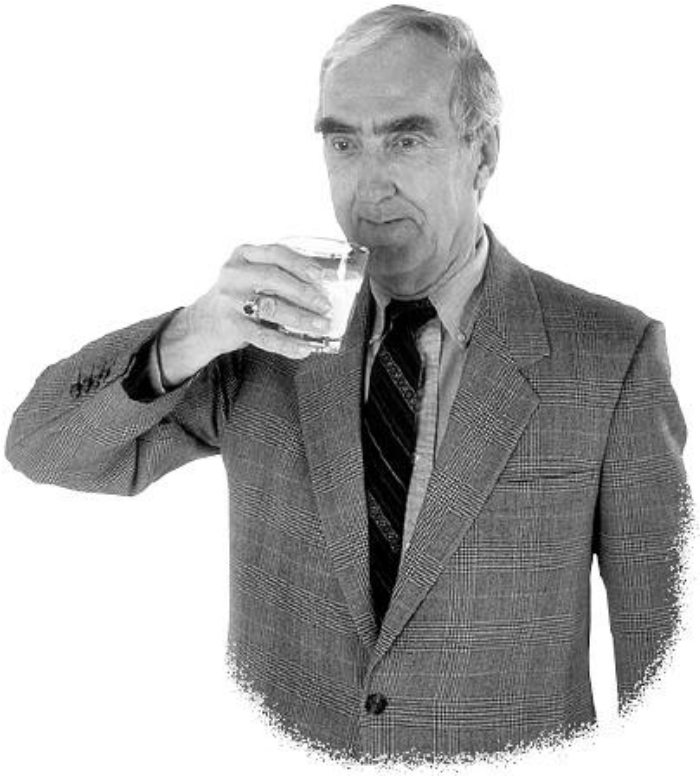
Multiply the numbers.

303 x 9	577 x 7	576 x 9	175 x 5	474 x 1
870 x 3	168 x 3	464 x 3	648 x 7	485 x 5
183 x 1	405 x 3	104 x 3	463 x 0	965 x 6
617 x 2	523 x 8	572 x 0	427 x 6	458 x 2
976 x 9	308 x 5	905 x 9	712 x 3	338 x 3
188 x 4	822 x 3	361 x 7	272 x 1	255 x 2

278 x 2	210 x 6	926 x 1	724 x 7	154 x 5
738 x 4	767 x 6	920 x 0	439 x 5	593 x 6
315 x 1	796 x 3	693 x 8	511 x 9	749 x 2
278 x 4	662 x 5	864 x 7	771 x 3	434 x 1
272 x 6	700 x 4	765 x 6	512 x 2	808 x 9
655 x 4	251 x 4	950 x 7	573 x 8	485 x 8

Real Life Math

Paul is a teacher. He helps out with the school canteen. The school has 826 students. Each student will often consume 5 cartons of milk per week. How many cartons of milk should Paul order for one week?



Multiplication

Example

$$\begin{array}{r} 21 \\ \times\ 42 \\ \hline \end{array}$$

Step 1

Multiply the top number by the ones (21 x 2).

$$\begin{array}{r} 21 \\ \times\ 42 \\ \hline 42 \end{array}$$

Step 2

Place a zero in the ones place, below the product of **Step 1**.

$$\begin{array}{r} 21 \\ \times\ 42 \\ \hline 42 \\ 0 \end{array}$$

Step 3

Multiply the top number by the tens (21 x 4) and place it next to the zero from **Step 2.**

$$\begin{array}{r} 21 \\ \times\ 42 \\ \hline 42 \\ 840 \end{array}$$

Step 4

Add the bottom two numbers (42 + 840).

$$\begin{array}{r} 21 \\ \times\ 42 \\ 42 \\ 840 \\ \hline 882 \end{array}$$

The final answer is 882.

Multiply the numbers.

34 x 22	37 x 11	30 x 33	31 x 23	43 x 21
20 x 44	42 x 20	55 x 11	43 x 22	24 x 21
82 x 11	41 x 22	24 x 12	14 x 20	11 x 83
24 x 22	32 x 32	13 x 33	44 x 21	19 x 11
41 x 21	29 x 11	20 x 43	11 x 70	22 x 41
11 x 39	30 x 23	10 x 19	41 x 20	31 x 32

Real Life Math

Frank is an egg farmer. Eggs are sold in cartons that contain 12 eggs. Frank sends eggs to market in larger boxes. Each box contains 12 cartons. What is the total number of eggs in each box?



Multiplication

Example

$$\begin{array}{r} 56 \\ \times\ 76 \\ \hline \end{array}$$

Multiply 56 by 6 ones.

$$\begin{array}{r} 56 \\ \times\ 76 \\ \hline 336 \end{array}$$

Multiply 56 by 7 tens.

$$\begin{array}{r} 56 \\ \times\ 76 \\ \hline 336 \\ 3920 \end{array}$$

$$\begin{array}{r} 56 \\ \times\ 76 \\ \hline 336 \\ 3920 \\ \hline 4256 \end{array}$$ Add

The final answer is 4256.

Multiply the numbers.

91 x 97	32 x 51	53 x 50	87 x 3	86 x 33
55 x 0	45 x 4	18 x 87	35 x 9	40 x 16
89 x 57	99 x 41	58 x 24	35 x 65	62 x 67
16 x 92	61 x 88	10 x 34	14 x 47	17 x 72
55 x 7	69 x 83	58 x 1	44 x 6	63 x 10
26 x 92	57 x 96	84 x 5	21 x 83	70 x 10

78 x 23	93 x 6	62 x 66	35 x 38	43 x 66
10 x 47	80 x 78	85 x 4	75 x 99	80 x 20
89 x 67	91 x 96	42 x 8	54 x 95	56 x 48
25 x 14	59 x 9	83 x 52	63 x 65	23 x 16
79 x 11	63 x 51	18 x 26	26 x 65	84 x 89
54 x 81	31 x 32	61 x 57	93 x 0	91 x 40

Real Life Math

Jean works in an office. She is able to type 53 words per minute. How many words will she type in 15 minutes?



Multiplication

Example

$$\begin{array}{r} 671 \\ \times\ 57 \\ \hline \end{array}$$

Multiply 671 by 7 ones.

$$\begin{array}{r} 671 \\ \times\ 57 \\ \hline 4697 \end{array}$$

Multiply 671 by 5 tens.

$$\begin{array}{r} 671 \\ \times\ 57 \\ \hline 4697 \\ 33550 \end{array}$$

← Note inserted zero

$$\begin{array}{r} 671 \\ \times\ 57 \\ \hline 4697 \\ 33550 \\ \hline 38247 \end{array}$$

› Add

The final answer is 38247.

Multiply the numbers.

102 x 53	155 x 4	572 x 89	889 x 23	384 x 79
280 x 13	194 x 95	811 x 6	308 x 72	219 x 52
544 x 0	725 x 28	774 x 9	363 x 66	941 x 32
249 x 33	533 x 27	294 x 20	495 x 49	446 x 7
750 x 70	909 x 25	249 x 46	339 x 25	676 x 77
485 x 75	296 x 85	233 x 34	312 x 40	589 x 78

809 x 46	874 x 19	694 x 97	987 x 71	137 x 61
287 x 43	776 x 98	206 x 33	243 x 90	337 x 11
848 x 52	639 x 88	591 x 34	938 x 54	636 x 34
710 x 45	386 x 64	723 x 54	828 x 18	250 x 24
914 x 51	768 x 46	600 x 32	291 x 96	448 x 28
848 x 5	417 x 84	580 x 51	536 x 61	948 x 32

Real Life Math

Carla sells magazines. She expects to sell 255 magazines per day. How many magazines should Carla plan to sell in 25 days?





Multiplication

Example

$$\begin{array}{r} 897 \\ \times\ 284 \\ \hline \end{array}$$

Multiply 897 by 4 ones.

$$\begin{array}{r} 897 \\ \times\ 284 \\ \hline 3588 \end{array}$$

Multiply 897 by 8 tens.

$$\begin{array}{r} 897 \\ \times\ 284 \\ \hline 3588 \\ 71760 \end{array}$$

Multiply 897 by 2 hundreds.

$$\begin{array}{r} 897 \\ \times\ 284 \\ \hline 3588 \\ 71760 \\ 179400 \end{array}$$

Note two zeros inserted.

$$\begin{array}{r} 897 \\ \times\ 284 \\ \hline 3588 \\ 71760 \\ 179400 \\ \hline 254748 \end{array}$$

Add

The final answer is 254748.

Multiply the numbers.

490 x 171	131 x 39	117 x 634	435 x 997	166 x 7
100 x 862	884 x 589	108 x 512	645 x 788	143 x 135
403 x 308	298 x 488	308 x 965	934 x 271	762 x 889
227 x 301	281 x 86	893 x 555	646 x 588	598 x 401
673 x 441	717 x 94	743 x 104	574 x 170	671 x 713
573 x 604	809 x 517	909 x 281	250 x 919	376 x 86

544 x 690	844 x 686	205 x 578	584 x 68	270 x 386
637 x 52	408 x 533	460 x 84	858 x 287	466 x 47
241 x 506	888 x 825	924 x 532	653 x 477	788 x 644
572 x 356	835 x 682	579 x 20	531 x 269	306 x 429
844 x 218	655 x 499	138 x 761	397 x 930	152 x 603
541 x 714	905 x 776	989 x 533	624 x 11	605 x 904

Real Life Math

Kelly runs a clothing factory. 875 shirts are produced in a day. There are 295 production days per year. How many shirts should she expect to produce in a year?



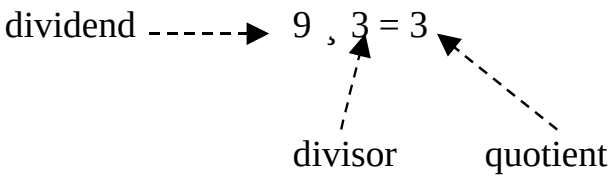




Division

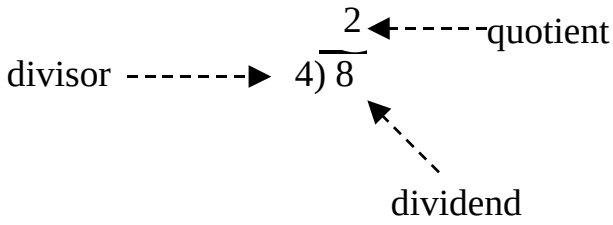
In math, the symbols ¸ and)‾ are used to denote division.

9 ¸ 3 is read as “9 divided by 3”.



The answer (quotient) is 3.

4)‾8 is read as “8 divided by 4”.



The answer (quotient) is 2.

Divide

$7 \div 1$	$9 \div 3$	$6 \div 2$	$2 \, ¸ \, 1$
$4 \, ¸ \, 2$	$6 \, ¸ \, 3$	$8 \, ¸ \, 4$	$8 \, ¸ \, 2$
$4\overline{)8}$	$3\overline{)6}$	$2\overline{)8}$	$2\overline{)4}$
$1\overline{)2}$	$2\overline{)6}$	$1\overline{)7}$	$3\overline{)9}$



Real Life Math

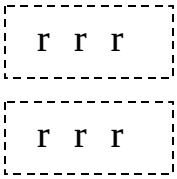
Jerry is a server at a coffee house. This morning, he is serving 8 customers. There are 2 people at each table. How many tables is he waiting on?



Division

Examples:

$6 \div 2 = 3$

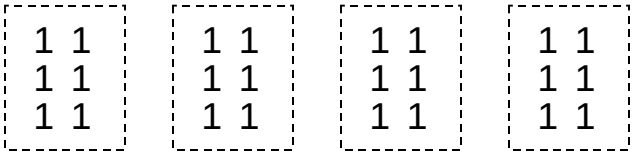


There are a total of 6 r 's.

The r 's are divided into 2 groups.

There are 3 r 's in each group.

$$4\overline{)24} \quad 6$$



There are a total of 24 1 's.

The 1 's are divided into 4 groups.

There are 6 1 's in each group.

Divide

$56 \div 7$	$28 \div 4$	$21 \div 3$	$35 \div 5$
$27 \div 9$	$45 \div 5$	$30 \div 6$	$45 \div 9$
$4\overline{)12}$	$9\overline{)54}$	$6\overline{)18}$	$8\overline{)40}$
$5\overline{)15}$	$8\overline{)56}$	$9\overline{)18}$	$5\overline{)10}$
$5\overline{)30}$	$3\overline{)6}$	$2\overline{)4}$	$7\overline{)42}$

$6\overline{)48}$	$0\overline{)79}$	$7\overline{)28}$	$6\overline{)42}$
$5\overline{)25}$	$3\overline{)27}$	$4\overline{)16}$	$7\overline{)21}$
$6\overline{)36}$	$5\overline{)40}$	$7\overline{)49}$	$3\overline{)18}$
$8\overline{)64}$	$3\overline{)15}$	$9\overline{)81}$	$9\overline{)36}$
$3\overline{)15}$	$6\overline{)54}$	$3\overline{)12}$	$2\overline{)10}$
$8\overline{)32}$	$2\overline{)6}$	$2\overline{)14}$	$0\overline{)42}$



Remember

Division always related to multiplication.

For example,

If $6 \times 9 = 54$,

then $54 \div 6 = 9$,

or $54 \div 9 = 6$.

If $4 \times 8 = 32$,

then $32 \div 4 = 8$

Real Life Math

Leo needs to buy 16 rolls of paper towels. There are 4 rolls of paper in a pack. How many packages of paper towels does he need to buy?

How many packages of paper towels would Leo need to buy to get 24 rolls?

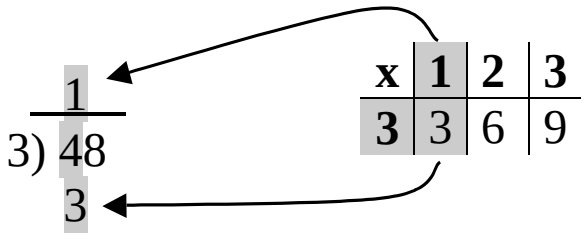


Division

Example $48 \div 3$.

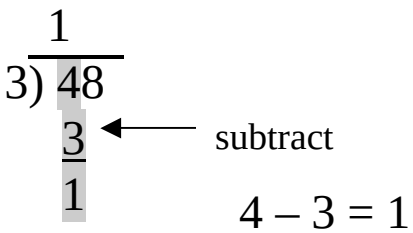
Step 1

Divide the tens.

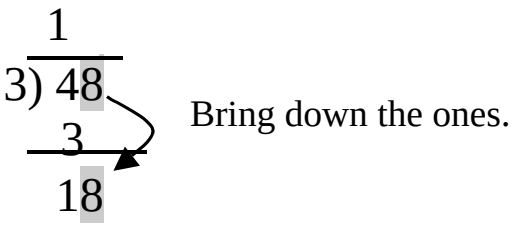


3 will fit into 4 once

Step 2

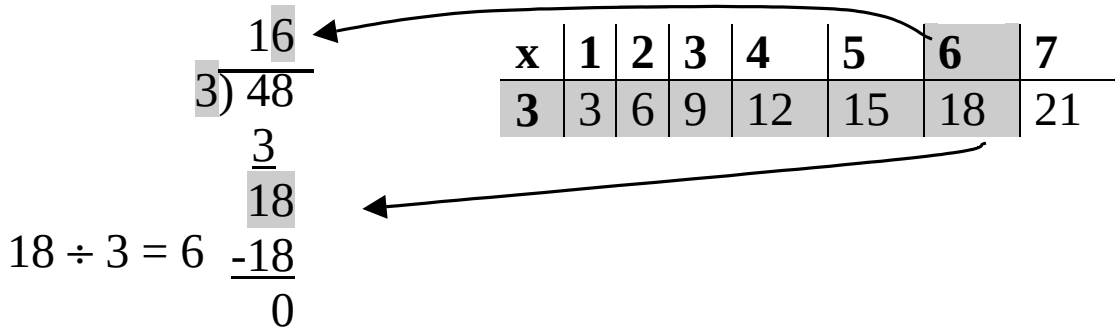


Step 3



Step 4

Divide the ones.



The final answer (quotient) is 16.

Divide

$2\overline{)48}$	$0\overline{)37}$	$3\overline{)18}$	$1\overline{)47}$
$3\overline{)54}$	$7\overline{)70}$	$5\overline{)90}$	$2\overline{)26}$
$8\overline{)32}$	$4\overline{)52}$	$6\overline{)66}$	$4\overline{)76}$
$4\overline{)44}$	$2\overline{)38}$	$8\overline{)32}$	$5\overline{)25}$
$2\overline{)94}$	$8\overline{)88}$	$5\overline{)50}$	$9\overline{)18}$
$3\overline{)75}$	$7\overline{)21}$	$4\overline{)20}$	$5\overline{)95}$

Real Life Math

Joanne works at a 72-car parking garage. There are 8 rows of parking spaces. Each row has the same number of parking spaces. What is the number of parking spaces per row?





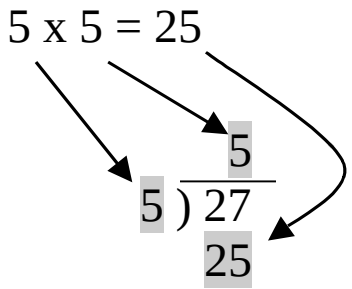
Division

Example $27 \div 5$.

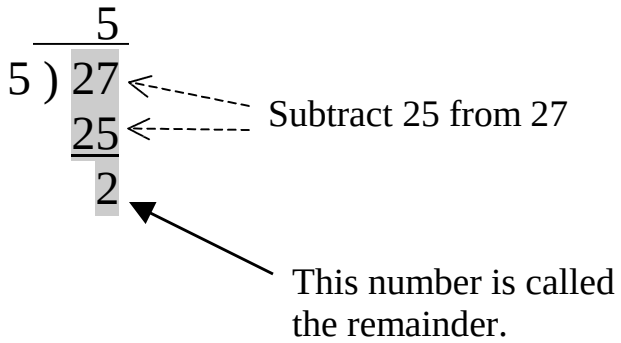
The divisor 5 does not fit evenly into the dividend 27.

X	1	2	3	4	5	6
5	5	10	15	20	25	30

As seen above, $5 \times 5 = 25$ and $6 \times 5 = 30$.



25 is the largest multiple of 5 that is not greater than 27.



The final answer (quotient) is 5 r2 .

Remember



The remainder is always less than the divisor.

Divide

$5\overline{)38}$	$4\overline{)14}$	$6\overline{)20}$	$4\overline{)33}$
$3\overline{)11}$	$2\overline{)13}$	$5\overline{)27}$	$7\overline{)52}$
$2\overline{)17}$	$8\overline{)54}$	$5\overline{)48}$	$5\overline{)31}$
$5\overline{)23}$	$8\overline{)79}$	$8\overline{)74}$	$4\overline{)23}$

9) 89	6) 50	6) 56	3) 25
3) 10	3) 16	6) 43	4) 30
7) 69	6) 39	5) 43	6) 58
6) 15	8) 70	2) 19	8) 68
8) 62	4) 27	6) 44	4) 29
6) 21	5) 39	5) 14	7) 43

Real Life Math

John works at an electronics store. He has a spool with 30 metres of wire on it. A customer would like to buy some 8-metre lengths of this wire. How many 8-metre lengths of wire can be cut off this spool? How much wire will be left over?



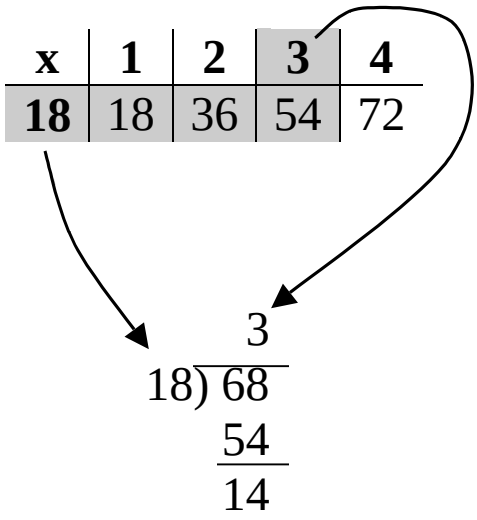
Division

Example $68 \div 18$.

We know that $18 \times 10 = 180$
and 180 is more than 68.

This means that there will be no number in the tens for the quotient.

18 will fit into 68 three times.



The final answer (quotient) is 3 r14.

Divide

20) 72	24) 84	61) 95	16) 62
25) 87	33) 85	36) 74	46) 96
20) 94	32) 95	24) 67	12) 55
20) 40	36) 89	13) 62	10) 63
14) 85	10) 88	11) 50	14) 18
26) 75	15) 49	14) 20	32) 95

Real Life Math

Roy has his own cleaning company with 15 employees. He has a contract to clean a 91-room building. For this job, each of his employees will clean the same number of rooms. How many rooms will each employee clean? How many rooms will be left over for Roy to take care of himself?

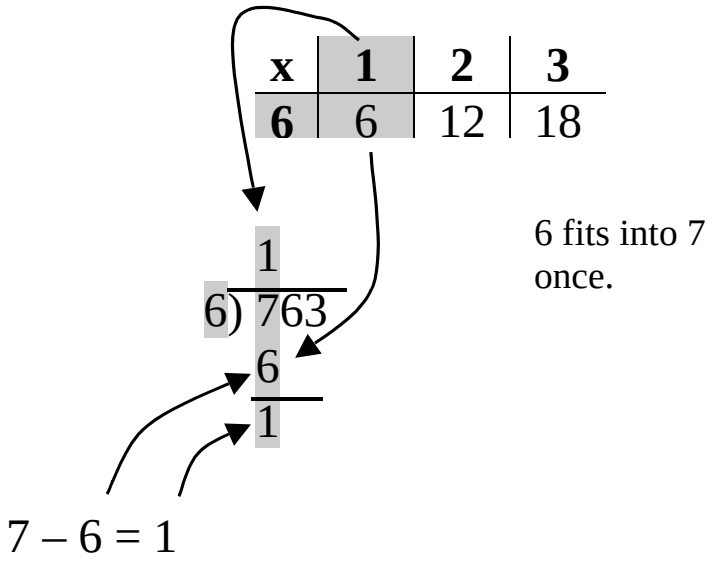


Division

Example $763 \div 6$.

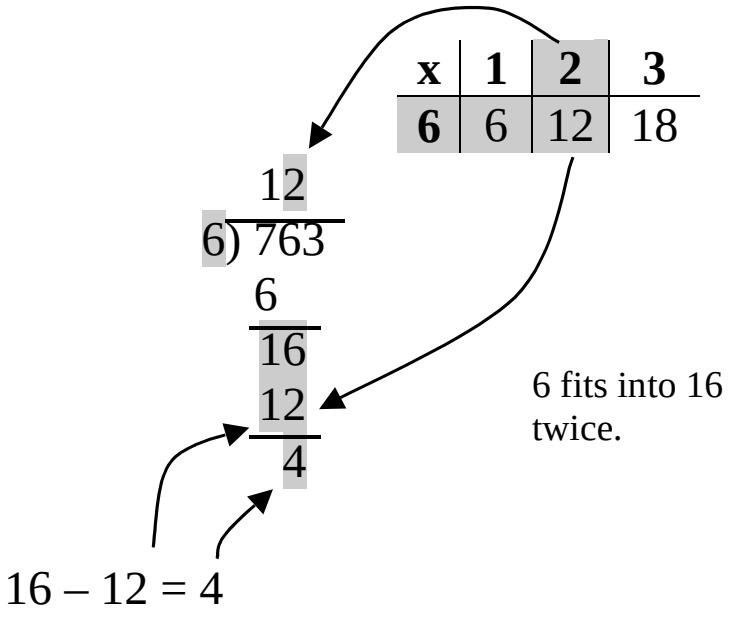
Step 1

Divide the hundreds.



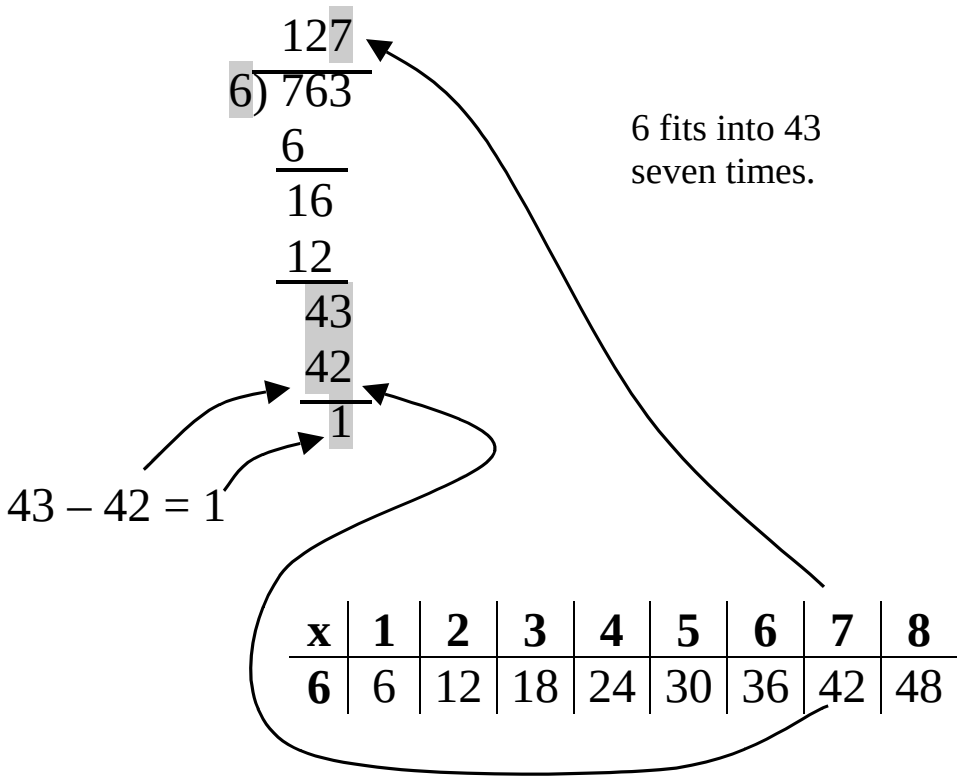
Step 2

Divide the tens.



Step 3

Divide the ones.



x	1	2	3	4	5	6	7	8
6	6	12	18	24	30	36	42	48

The answer (quotient) is 127 r2.

Remember



The quotient for any number divided by zero is always zero.

The quotient any zero divided by another number is also zero.

$2 \div 0 = 0$ $0 \div 4 = 0$ $8 \div 0 = 0$

Divide

$2\overline{)705}$	$0\overline{)529}$	$3\overline{)530}$	$4\overline{)476}$
$5\overline{)512}$	$2\overline{)563}$	$1\overline{)143}$	$6\overline{)640}$
$8\overline{)803}$	$7\overline{)834}$	$6\overline{)764}$	$6\overline{)604}$
$4\overline{)504}$	$2\overline{)359}$	$6\overline{)623}$	$8\overline{)808}$
$3\overline{)332}$	$2\overline{)540}$	$4\overline{)462}$	$7\overline{)853}$
$9\overline{)947}$	$2\overline{)375}$	$3\overline{)476}$	$4\overline{)444}$

$7\overline{)750}$	$5\overline{)517}$	$6\overline{)887}$	$1\overline{)158}$
$6\overline{)711}$	$5\overline{)476}$	$3\overline{)314}$	$7\overline{)864}$
$3\overline{)425}$	$6\overline{)670}$	$3\overline{)363}$	$8\overline{)886}$
$7\overline{)892}$	$9\overline{)963}$	$6\overline{)646}$	$3\overline{)388}$
$4\overline{)630}$	$5\overline{)526}$	$0\overline{)506}$	$2\overline{)370}$
$6\overline{)635}$	$3\overline{)445}$	$4\overline{)465}$	$2\overline{)487}$

Real Life Math

Leo works for a laundry service. Each washing machine at his site can hold a load of 9 bed sheets. Leo has received a shipment of 915 sheets to be washed. This will result in how many loads of laundry? How many sheets will be left over to make up a partial load?







Division

Example $808 \div 52$.

We know that 52 is more than 8.

This means that there will be no number in the hundreds for the quotient.

x	**1**	**2**	**3**	**4**
52	52	104	156	208

$$52\overline{)\,808}\quad 1$$
$$52$$
$$28$$

52 will fit into 80 once.

$$52\overline{)\,808}\quad 15$$
$$52$$
$$288$$
$$260$$
$$28$$

52 will fit into 288 five times.

x	**1**	**2**	**3**	**4**	**5**	**6**
52	52	104	156	208	260	312

The final answer (quotient) is 15 r 28.

Divide

33) 929	29) 355	45) 684
51) 867	45) 462	82) 831
49) 679	47) 595	92) 994
60) 675	35) 466	50) 720
14) 263	78) 859	83) 917
84) 876	52) 643	82) 955

Real Life Math

Scott drives a delivery truck for an oil company. He has 429 cases of oil at the warehouse. These have to go to 14 service stations. Each station must receive the same number of cases. How many cases of oil will Scott drop at each station? How many cases of oil will be left over?



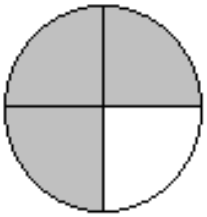


Fractions

A fraction is used to represent an amount that is not a whole number.

A fraction can be thought of as a part of something.

Look at the following figure:



The circle is divided into four equal parts.

Three of the four parts are shaded.

This can be described using the following fraction:

$$\frac{3}{4}$$

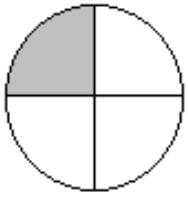
The bottom number in the fraction is called the denominator.
This is the total number of parts

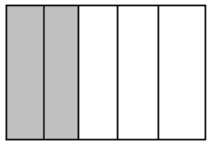
The top number in the fraction is called the numerator.
This is the partial amount.

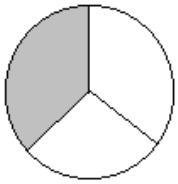
For the figure above, we can also use $\frac{1}{4}$ to represent the number of parts that are not shaded.

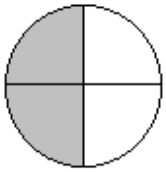
Write a fraction below each figure that shows how much of the figure is shaded.

Write another fraction below each figure that shows how much of the figure is not shaded.



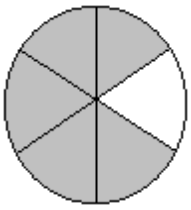


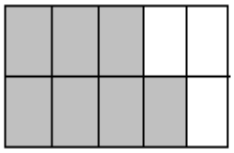


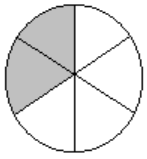


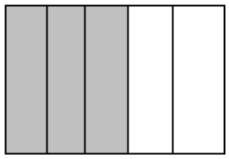
$\frac{1}{4}$

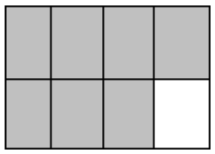
$\frac{3}{4}$

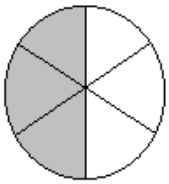


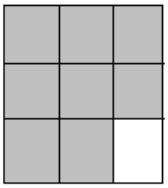


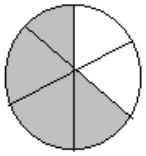


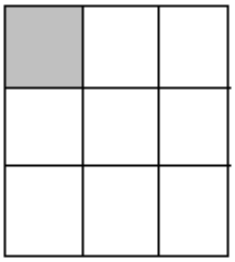


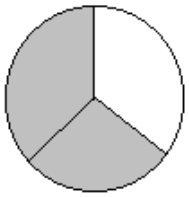


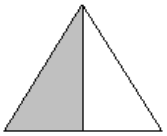


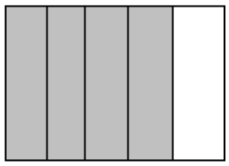






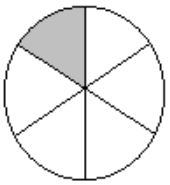


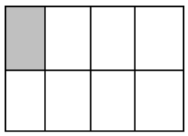












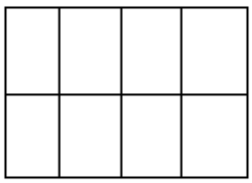
Fractions

Write a fraction for each of the following.

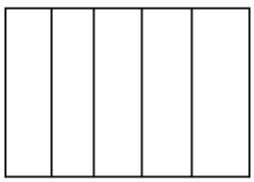
eight ninths	_____	three eights	_____	one third	_____
five ninths	_____	two sevenths	_____	one quarter	_____
two thirds	_____	five eighths	_____	nine tenths	_____
one sixth	_____	one half	_____	four fifths	_____

Shade or colour each picture to reflect the fraction.

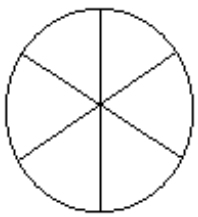
$\frac{1}{8}$



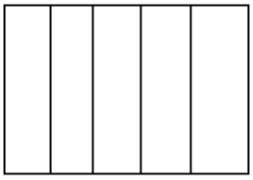
$\frac{4}{5}$



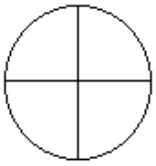
$\frac{4}{6}$



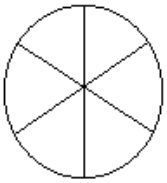
$\frac{3}{5}$



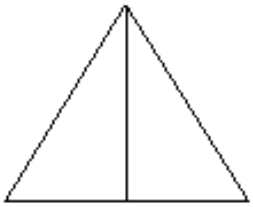
$\frac{2}{4}$



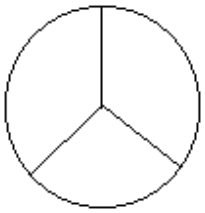
$\frac{1}{6}$



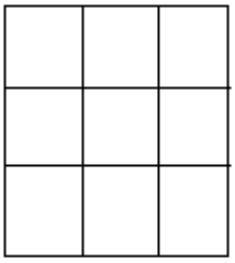
$\frac{1}{2}$



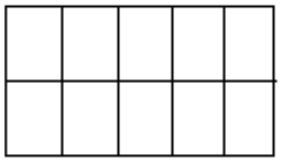
$\frac{1}{3}$



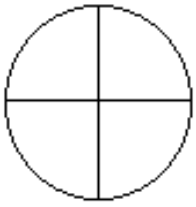
$\frac{8}{9}$



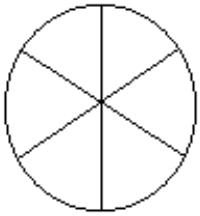
$\frac{3}{10}$



$\frac{1}{4}$



$\frac{5}{6}$

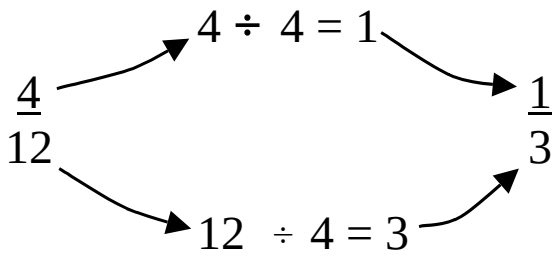


Converting Fractions to their Simplest Forms

A fraction is in its simplest form when the only whole number that will divide into both the numerator and the denominator is 1.

For example, the fraction $\frac{4}{12}$ is not in its simplest form.

The numerator and denominator can both be divided by 4.



Thus, the simplest form of $\frac{4}{12}$ **is** $\frac{1}{3}$ **.**

Convert each fraction to its simplest form.

$\frac{2}{4}$	$\frac{24}{88}$	$\frac{23}{46}$	$\frac{9}{54}$
$\frac{7}{14}$	$\frac{27}{81}$	$\frac{6}{18}$	$\frac{2}{26}$
$\frac{4}{68}$	$\frac{40}{72}$	$\frac{30}{50}$	$\frac{66}{99}$
$\frac{12}{30}$	$\frac{6}{9}$	$\frac{14}{21}$	$\frac{55}{90}$
$\frac{24}{40}$	$\frac{18}{96}$	$\frac{12}{16}$	$\frac{3}{9}$
$\frac{11}{66}$	$\frac{10}{40}$	$\frac{25}{75}$	$\frac{9}{36}$

Mixed Numbers

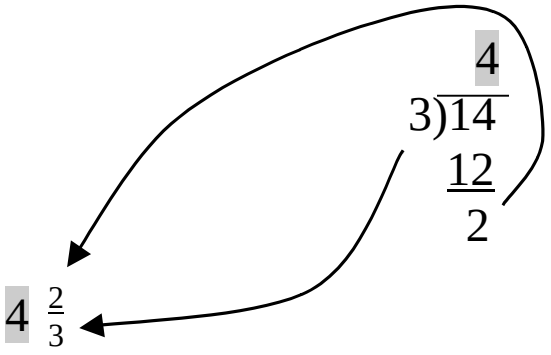
Look at the fraction $\frac{14}{3}$.

In this case, the numerator is greater than the denominator.

This fraction can also be expressed as a mixed number. It combines a whole number with a fraction.

This fraction can be thought of as $14 \div 3$.

To convert it to a mixed number:



Therefore, the fraction $\frac{14}{3}$ can also be represented using the mixed number $4\ \frac{2}{3}$.

Convert the following fractions to mixed numbers.

$\frac{12}{9}$	$\frac{86}{6}$	$\frac{49}{4}$	$\frac{37}{4}$	$\frac{24}{9}$
$1\frac{1}{3}$				
$\frac{81}{6}$	$\frac{72}{7}$	$\frac{86}{8}$	$\frac{72}{5}$	$\frac{42}{9}$
$\frac{40}{6}$	$\frac{28}{3}$	$\frac{16}{6}$	$\frac{7}{2}$	$\frac{51}{2}$
$\frac{12}{7}$	$\frac{37}{9}$	$\frac{84}{8}$	$\frac{3}{2}$	$\frac{92}{3}$
$\frac{62}{6}$	$\frac{45}{4}$	$\frac{97}{6}$	$\frac{39}{6}$	$\frac{63}{4}$
$\frac{59}{7}$	$\frac{33}{7}$	$\frac{69}{4}$	$\frac{35}{6}$	$\frac{18}{7}$

83 / 3	9 / 4	24 / 7	7 / 4	18 / 8
21 / 2	90 / 7	37 / 9	41 / 3	10 / 3
14 / 6	38 / 3	79 / 2	82 / 4	50 / 6
25 / 3	20 / 7	34 / 4	75 / 2	81 / 5
67 / 9	74 / 5	31 / 3	74 / 9	53 / 2
73 / 7	57 / 9	35 / 9	56 / 3	69 / 7

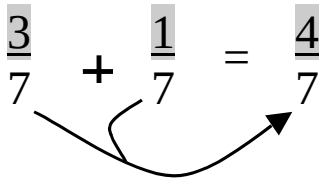
Adding Fractions

Example

$$\frac{3}{7} + \frac{1}{7}$$

When you are adding fractions with the same denominator, add the numerators.

$$3 + 1 = 4$$



Use the same denominator.

The final answer is $\frac{4}{7}$.

Add the fractions.

$\frac{2}{9} + \frac{2}{9}$

$\frac{2}{5} + \frac{2}{5}$

$\frac{2}{7} + \frac{2}{7}$

$\frac{3}{7} + \frac{3}{7}$

$\frac{3}{10} + \frac{7}{10}$

$\frac{3}{8} + \frac{1}{8}$

$\frac{1}{6} + \frac{5}{6}$

$\frac{5}{8} + \frac{1}{8}$

$\frac{5}{6} + \frac{5}{6}$

$\frac{5}{8} + \frac{3}{8}$

$\frac{1}{9} + \frac{4}{9}$

$\frac{1}{5} + \frac{2}{5}$

Real Life Math

Ron is landscaping his garden. He has two pieces of wooden border that are each $\frac{2}{3}$ of a metre in length. What is the total length of wooden border that Ron has on hand?



Adding Fractions with Different Denominators

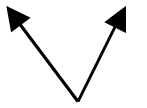
Example

$$\frac{2}{3} + \frac{3}{4}$$

Step 1

Find the lowest common denominator.

$$\frac{2}{3} + \frac{3}{4}$$



Both 3 and 4 can divide into 12.

Step 2

Convert both fractions.

$\frac{2}{3}$ is the same as $\frac{8}{12}$.

$\frac{3}{4}$ is the same as $\frac{9}{12}$.

Step 3

Add the converted fractions.

$$\frac{8}{12} + \frac{9}{12} = \frac{17}{12} = 1\frac{5}{12}$$

The final answer is $1\frac{5}{12}$.

Remember



to convert final answer fractions to their simplest forms.

Add the fractions.

$\frac{1}{3} + \frac{1}{2}$ $\qquad$ $\frac{2}{3} + \frac{1}{7}$

$\frac{2}{3} + \frac{1}{9}$ $\qquad$ $\frac{1}{2} + \frac{2}{9}$

$\frac{1}{6} + \frac{5}{7}$

$\frac{5}{7} + \frac{3}{4}$

$\frac{3}{7} + \frac{1}{3}$

$\frac{2}{7} + \frac{2}{9}$

$\frac{2}{9} + \frac{1}{6}$

$\frac{8}{9} + \frac{1}{2}$

$\frac{1}{3} + \frac{5}{6}$

$\frac{1}{8} + \frac{2}{5}$

$\frac{3}{4} + \frac{1}{2}$

$\frac{7}{9} + \frac{1}{3}$

$\frac{2}{3} + \frac{1}{2}$

$\frac{1}{2} + \frac{1}{4}$

Real Life Math

Adam is a cook at a restaurant. He is working with a recipe that calls for $\frac{3}{4}$ of a cup of water and $\frac{1}{3}$ of a cup of milk. How much liquid will Adam add to the saucepan?



Subtracting Fractions

Example

$$\frac{5}{7} - \frac{2}{7}$$

When you are subtracting fractions with the same denominator, subtract the numerators.

$$5 - 2 = 3$$

$$\frac{5}{7} - \frac{2}{7} = \frac{3}{7}$$

Use the same denominator.

The final answer is $\frac{3}{7}$.

Subtract the fractions.

$\frac{4}{7} - \frac{3}{7}$

$\frac{5}{8} - \frac{1}{8}$

$\frac{7}{8} - \frac{3}{8}$

$\frac{2}{5} - \frac{1}{5}$

$\frac{5}{8} - \frac{2}{8}$

$\frac{4}{7} - \frac{2}{7}$

$\frac{7}{10} - \frac{3}{10}$

$\frac{4}{5} - \frac{2}{5}$

$\frac{9}{10} - \frac{3}{10}$

$\frac{5}{9} - \frac{4}{9}$

$\frac{4}{9} - \frac{1}{9}$

$\frac{3}{5} - \frac{2}{5}$

Real Life Math

Holly works at a fabric store. She has a roll of material that is $\frac{4}{5}$ of a metre in length. She cuts off $\frac{1}{5}$ of a metre. How much material is left on the roll?



Subtracting Fractions with Different Denominators

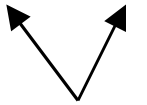
Example

$$\frac{1}{2} - \frac{2}{5}$$

Step 1

Find the lowest common denominator.

$$\frac{1}{2} - \frac{2}{5}$$



Both 2 and 5 can divide into 10.

Step 2

Convert both fractions.

$\frac{1}{2}$ is the same as $\frac{5}{10}$.

$\frac{2}{5}$ is the same as $\frac{4}{10}$.

Step 3

Subtract the converted fractions.

$$\frac{5}{10} - \frac{4}{10} = \frac{1}{10}$$

The final answer is $\frac{1}{10}$.

Remember



Convert final answer fractions to their simplest forms.

Subtract the fractions.

$\frac{1}{2} - \frac{1}{5}$ $\frac{9}{10} - \frac{1}{9}$ $\frac{2}{3} - \frac{3}{5}$

$\frac{7}{9} - \frac{3}{8}$ $\frac{3}{7} - \frac{1}{9}$ $\frac{3}{4} - \frac{4}{7}$

$\frac{5}{7} - \frac{3}{10}$	$\frac{3}{5} - \frac{1}{2}$	$\frac{3}{5} - \frac{1}{3}$
$\frac{3}{4} - \frac{2}{3}$	$\frac{3}{10} - \frac{1}{9}$	$\frac{4}{5} - \frac{2}{3}$
$\frac{5}{7} - \frac{1}{2}$	$\frac{5}{6} - \frac{1}{2}$	$\frac{5}{7} - \frac{5}{9}$
$\frac{7}{10} - \frac{1}{4}$	$\frac{3}{8} - \frac{1}{9}$	$\frac{1}{3} - \frac{1}{9}$
$\frac{2}{5} - \frac{1}{4}$	$\frac{5}{9} - \frac{1}{8}$	$\frac{4}{5} - \frac{1}{8}$
$\frac{7}{9} - \frac{3}{10}$	$\frac{5}{7} - \frac{3}{5}$	$\frac{4}{9} - \frac{2}{5}$

$\frac{3}{4} - \frac{1}{3}$ $\frac{3}{4} - \frac{1}{2}$ $\frac{3}{4} - \frac{3}{7}$

$\frac{3}{8} - \frac{1}{5}$ $\frac{2}{7} - \frac{1}{5}$ $\frac{2}{3} - \frac{2}{7}$

$\frac{1}{2} - \frac{1}{4}$ $\frac{4}{5} - \frac{1}{7}$ $\frac{2}{5} - \frac{1}{3}$

$\frac{7}{10} - \frac{1}{2}$ $\frac{5}{8} - \frac{5}{9}$ $\frac{9}{10} - \frac{5}{9}$

$\frac{3}{4} - \frac{4}{9}$ $\frac{2}{3} - \frac{3}{10}$ $\frac{4}{5} - \frac{1}{2}$

$\frac{1}{3} - \frac{1}{5}$ $\frac{8}{9} - \frac{6}{7}$ $\frac{3}{7} - \frac{1}{3}$

Real Life Math

Mark is a heavy equipment operator. When he arrived, there was $\frac{4}{5}$ of a barrel of fuel at the job site. He uses $\frac{1}{4}$ of a barrel of fuel that morning. How much fuel will be left in the barrel by noon?





Multiplying Fractions

Example

$$\frac{1}{2} \times \frac{1}{4}$$

This is the same as saying $\frac{1}{2}$ of $\frac{1}{4}$.

Step 1

Multiply the denominators.

$$2 \times 4 = 8$$

$$\frac{1}{2} \times \frac{1}{4} = \frac{\quad}{8}$$

Step 2

Multiply the numerators.

$$1 \times 1 = 1$$

$$\frac{1}{2} \times \frac{1}{4} = \frac{1}{8}$$

The final answer is $\frac{1}{8}$.

Remember



to convert fractions to their simplest forms.

Multiply the fractions.

$\frac{3}{4} \times \frac{3}{7}$ $\frac{8}{9} \times \frac{1}{7}$

$\frac{3}{5} \times \frac{5}{6}$ $\frac{4}{5} \times \frac{1}{9}$

$\frac{5}{8} \times \frac{1}{2}$ $\frac{7}{8} \times \frac{1}{2}$

$\frac{3}{5} \times \frac{4}{9}$ $\frac{2}{7} \times \frac{1}{2}$

$\frac{3}{5} \times \frac{4}{5}$ $\frac{1}{3} \times \frac{3}{4}$

$\frac{1}{2} \times \frac{4}{9}$

$\frac{1}{2} \times \frac{5}{9}$

$\frac{4}{5} \times \frac{7}{8}$

$\frac{1}{2} \times \frac{1}{6}$

$\frac{1}{2} \times \frac{3}{10}$

$\frac{9}{10} \times \frac{4}{5}$

$\frac{2}{3} \times \frac{3}{7}$

$\frac{1}{5} \times \frac{2}{3}$

$\frac{1}{3} \times \frac{4}{9}$

$\frac{1}{9} \times \frac{1}{6}$

$\frac{1}{2} \times \frac{3}{8}$

$\frac{5}{8} \times \frac{2}{5}$

Real Life Math

Peter is a plumber. He cuts a piece of pipe that is $\frac{2}{3}$ of a metre in length. He needs to cut another piece of pipe that is $\frac{1}{2}$ the length of the first piece. What would be the length of the second piece of pipe?





Multiplication of a Whole Number by a Fraction

Example

$$9 \times \frac{2}{5}$$

This is the same as saying $\frac{9}{1} \times \frac{2}{5}$.

Step 1

Multiply the numerator by the whole number.

$$9 \times 2 = 18$$

$$9 \times \frac{2}{5} = \frac{18}{5}$$

Step 2

Reduce the answer to its simplest form.

$$3\ \frac{3}{5}$$

Multiply the fractions.

$9 \times \frac{2}{3}$

$16 \times \frac{3}{7}$

$10 \times \frac{3}{8}$

$8 \times \frac{1}{3}$

$1 \times \frac{5}{6}$

$16 \times \frac{2}{3}$

$13 \times \frac{2}{7}$

$11 \times \frac{2}{3}$

$12 \times \frac{1}{2}$

$12 \times \frac{8}{9}$

$10 \times \frac{3}{10}$

$7 \times \frac{1}{7}$

$17 \times \frac{2}{3}$

$17 \times \frac{2}{5}$

$16 \times \frac{1}{2}$

$4 \times \frac{1}{3}$

$18 \times \frac{3}{4}$

$2 \times \frac{4}{5}$

$17 \times \frac{3}{10}$

$11 \times \frac{4}{5}$

$10 \times \frac{7}{8}$

$18 \times \frac{4}{5}$

$13 \times \frac{9}{10}$

$14 \times \frac{4}{5}$

Real Life Math

Brian works at a machine shop. He has just received a case that contains 24 cartons of screws. Each carton of screws weighs $\frac{2}{3}$ of a kilogram. What is the weight of the whole case of screws?



Multiplication of a Whole Number by a Mixed Number

Example

$$2 \times 2\frac{1}{7}$$

Step 1

Convert the mixed number to a fraction.

$$2 \times \frac{15}{7}$$

Step 2

Multiply the fraction by the whole number.

$$2 \times \frac{15}{7} = \frac{30}{7}$$

Step 3

Reduce the answer to its simplest form.

$$4\frac{2}{7}$$

Multiply the following.

$19 \times 4\frac{1}{2}$

$13 \times 4\frac{1}{2}$

$14 \times 10\frac{8}{9}$

$16 \times 3\frac{2}{3}$

$6 \times 9\frac{3}{10}$

$12 \times 8\frac{3}{5}$

$15 \times 4\frac{4}{5}$

$14 \times 5\frac{1}{3}$

$8 \times 4\frac{6}{7}$

$4 \times 5\frac{1}{4}$

$4 \times 5\frac{1}{2}$

$9 \times 8\frac{3}{4}$

$10 \times 4\frac{9}{10}$

$8 \times 3\frac{4}{5}$

$13 \times 2\frac{3}{4}$

$16 \times 10\frac{2}{5}$

$12 \times 5\frac{1}{9}$

$4 \times 2\frac{8}{9}$

$9 \times 9\frac{3}{4}$

$19 \times 9\frac{1}{2}$

$18 \times 1\frac{2}{5}$

$11 \times 3\frac{6}{7}$

$15 \times 10\frac{2}{9}$

$18 \times 4\frac{3}{8}$

Real Life Math

Jeff owns a powerboat. He plans to make 15 boating trips in the coming season. Jeff expects to use $2\frac{1}{4}$ litres of oil per trip. How much oil will he need for the boating season?



Reciprocals

If you take any fraction and flip it over, the result is called the reciprocal.

For example,

The reciprocal of $\frac{2}{3}$ is $\frac{3}{2}$ or $1\frac{1}{2}$.

The reciprocal of $\frac{1}{8}$ is $\frac{8}{1}$ or 8.

Remember



The product of any number and its reciprocal always equals 1.

For example,

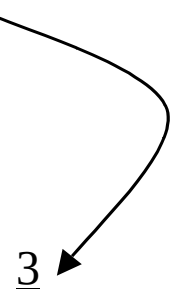
$$\frac{2}{3} \times \frac{3}{2} = 1$$

$$\frac{3}{8} \times \frac{8}{3} = 1$$

Dividing by Fractions

Example

$$\frac{5}{6} \div \frac{2}{3}$$



Step 1

Find the reciprocal of the divisor. $\frac{3}{2}$

Step 2

Multiply the dividend by the reciprocal found in step 1.

$$\frac{5}{6} \times \frac{3}{2} = \frac{15}{12} \quad \text{or} \quad 1\frac{1}{4}$$

The final answer is $1\frac{1}{4}$.

Remember

Convert mixed or whole numbers to fractions when dividing with fractions.



For example,

convert $2\frac{1}{3} \div \frac{3}{4}$ to $\frac{7}{3} \div \frac{3}{4}$

convert $\frac{1}{3} \div 1\frac{1}{3}$ to $\frac{1}{3} \div \frac{4}{3}$

convert $3\frac{1}{3} \div 1\frac{1}{2}$ to $\frac{10}{3} \div \frac{3}{2}$

convert $\frac{5}{9} \div 5$ to $\frac{5}{9} \div \frac{5}{1}$

Divide

$\frac{5}{8} \div \frac{1}{2}$

$\frac{1}{2} \div \frac{5}{8}$

$\frac{1}{7} \div \frac{2}{3}$

$\frac{3}{7} \div \frac{7}{8}$

$\frac{3}{5} \div \frac{2}{3}$

$\frac{5}{6} \div \frac{1}{5}$

$\frac{7}{9} \div 2\frac{1}{2}$

$\frac{2}{7} \div 4$

$1\frac{1}{5} \div \frac{1}{6}$

$1\frac{4}{5} \div \frac{1}{8}$

$3 \div \frac{6}{7}$

$\frac{1}{3} \div 2$

$\frac{5}{9} \div 3$

$\frac{7}{9} \div 7$

$\frac{3}{4} \div \frac{1}{3}$

$\frac{4}{9} \div \frac{2}{3}$

$\frac{1}{10} \div 1\frac{1}{3}$

$\frac{1}{3} \div \frac{1}{2}$

$1\frac{1}{9} \div \frac{1}{5}$

$\frac{1}{4} \div \frac{1}{2}$

$\frac{1}{2} \div \frac{5}{8}$

$\frac{2}{5} \div \frac{2}{3}$

$\frac{2}{5} \div \frac{1}{5}$

$1\frac{2}{3} \div 3$

Real life Math

Ed is a baker. He has $\frac{3}{4}$ of a cup of flavouring to make cookies. Ed puts all of the flavouring in 4 bowls. Each bowl contains the same amount. How much flavouring is in each bowl?



Decimals

Decimals are used to represent fractions.

The number 0.1 represents $\frac{1}{10}$ or one tenth.

The number 0.01 represents $\frac{1}{100}$ or one one hundredth.

The number 0.001 represents $\frac{1}{1000}$ or one one thousandth.

Thousands hundreds tens . tenths hundredths thousandths

decimal

For example, look at the number 1.432

The first number to the right of the decimal is in the tenths place.

The 4 represents 4 tenths or $\frac{4}{10}$

The second number to the right of the decimal is in the one one hundredths place.

The 3 represents 3 one hundredths or $\frac{3}{100}$

The third number to the right of the decimal is in the one one thousandths place.

The 2 represents 2 one thousandths or $\frac{2}{1000}$

Change each fraction to a decimal.

$\frac{8}{10}$	$\frac{1}{10}$	$\frac{3}{10}$	$\frac{9}{10}$
$\frac{2}{10}$	$\frac{4}{10}$	$\frac{5}{10}$	$\frac{7}{10}$
$\frac{37}{100}$	$\frac{97}{100}$	$\frac{52}{100}$	$\frac{66}{100}$
$\frac{78}{100}$	$\frac{83}{100}$	$\frac{88}{100}$	$\frac{45}{100}$
$\frac{50}{100}$	$\frac{54}{100}$	$\frac{59}{100}$	$\frac{69}{100}$
$\frac{369}{1000}$	$\frac{856}{1000}$	$\frac{688}{1000}$	$\frac{897}{1000}$
$\frac{361}{1000}$	$\frac{172}{1000}$	$\frac{212}{1000}$	$\frac{494}{1000}$

Write a fraction for each of the following.

0.9	0.6	0.5	0.2
2.7	3.8	1.3	2.1
0.81	0.92	0.94	0.83
0.58	0.62	0.98	0.71
4.97	1.11	2.71	8.42
0.386	0.585	0.652	0.238
0.212	4.174	3.492	2.184

Adding Decimals

Example 3.4 + 9.2

Step 1

Position the numbers so that the decimals line up.

$$\begin{array}{r} 3.4 \\ +\ 9.2 \\ \hline \end{array}$$

Step 2

Add the numbers.

$$\begin{array}{r} 3.4 \\ +\ 9.2 \\ \hline 126 \end{array}$$

Step 3

Place a decimal in the answer in line with the numbers above.

$$\begin{array}{r} 3.4 \\ +\ 9.2 \\ \hline 12.6 \end{array}$$

The final answer is 12.6

Remember



Insert 0 into any empty space when numbers are lined up by decimals.

For example

convert to

$$\begin{array}{r} 5.54 \\ +\ 7.6 \\ \hline \end{array} \qquad \begin{array}{r} 5.54 \\ +\ 7.60 \\ \hline \end{array}$$

convert to

$$\begin{array}{r} 4.315 \\ +\ 4.5 \\ \hline \end{array} \qquad \begin{array}{r} 4.315 \\ +\ 4.500 \\ \hline \end{array}$$

Add the numbers.

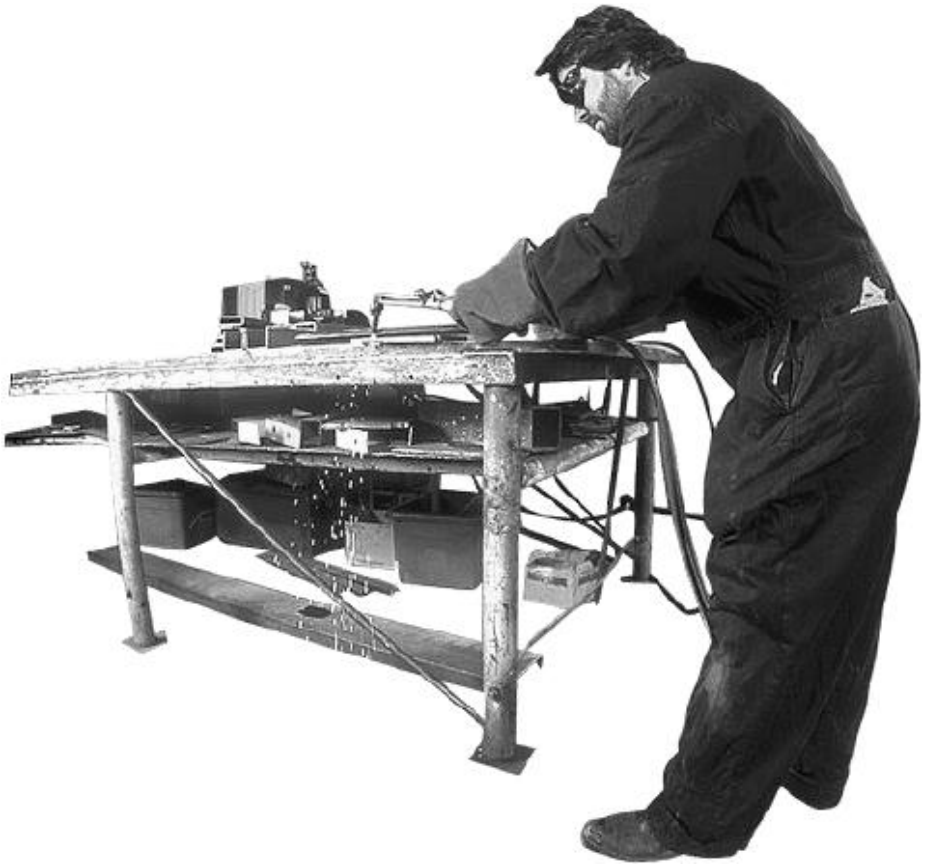
$$\begin{array}{r} 2.7 \\ +\ 6.2 \\ \hline \end{array} \qquad \begin{array}{r} 2.2 \\ +\ 8.3 \\ \hline \end{array} \qquad \begin{array}{r} 2.5 \\ +\ 5.5 \\ \hline \end{array} \qquad \begin{array}{r} 3.4 \\ +\ 6.1 \\ \hline \end{array}$$

$$\begin{array}{r} 8.8 \\ +\ 1.7 \\ \hline \end{array} \qquad \begin{array}{r} 9.8 \\ +\ 6.2 \\ \hline \end{array} \qquad \begin{array}{r} 4.7 \\ +\ 4.6 \\ \hline \end{array} \qquad \begin{array}{r} 8.6 \\ +\ 4.5 \\ \hline \end{array}$$

1.8 + 7.6	9.3 + 1.3	9.6 + 7	4.3 + 9
3.63 + 9.39	9.17 + 2.55	7.02 + 9.21	5.07 + 4.12
4.07 + 1.4	2.97 + 4.1	9.84 + 5.52	5.49 + 8.87
9.303 + 5.840	2.765 + 8.397	7.537 + 4.911	9.299 + 4.471
7.607 + 7.39	1.123 + 3.32	2.402 + 7.025	4.544 + 6.77
8.187 + 2.87	5.275 + 2.546	2.168 + 1.675	8.406 + 1.927

Real Life Math

Art works with metal. He has a sheet of tin that is 0.37 centimetres thick. He has another sheet that is 0.26 centimetres thick. If one sheet is placed on top of the other, what is the combined thickness?



Subtracting Decimals

Example $4.6 - 3.2$

Step 1

Position the numbers so that the decimals line up.

$$\begin{array}{r} 4.6 \\ -\ 3.2 \\ \hline \end{array}$$

Step 2

Subtract the numbers.

$$\begin{array}{r} 4.6 \\ -\ 3.2 \\ \hline 14 \end{array}$$

Step 3

Place a decimal in the answer in line with the numbers above.

$$\begin{array}{r} 4.6 \\ -\ 3.2 \\ \hline 1.4 \end{array}$$

The final answer is 1.4

Subtract the numbers.

8.7 − 7.1	7.5 − 5.3	9.6 − 7	4.8 − 4.1
8.6 − 7	9.3 − 7.2	8.2 − 2.1	9.2 − 3.2
4.29 − 1.26	8.45 − 3.98	7.11 − 6.93	8.21 − 1.91
8.49 − 2.29	4.15 − 2.9	9.86 − 8.98	6.71 − 5.7
9.774 − 3.684	5.545 − 2.497	4.448 − 3.786	7.975 − 4.427
4.478 − 3.67	3.519 − 1.49	7.843 − 1.882	7.967 − 1.741

Real Life Math

Pete is a mechanic. He takes a spark plug out of an engine and measures its gap. The gap is 2.21 millimetres. The manual for that engine states that spark plug gap should measure 0.97 millimetres. The gap is too large by how much?



Multiplying Decimals

Example 4.21 x 5.3

Step 1

Multiply as whole numbers.

$$\begin{array}{r} 4.21 \\ \times\ 5.3 \\ \hline 1263 \\ 21050 \\ \hline 22313 \end{array}$$

Step 2

Count the number of digits in the equation that are to the right of decimals.

$$\begin{array}{r} 4.21 \\ \times\ 5.3 \end{array}$$

There are 3 numbers in the equation to the right of decimals.

Step 3

Take the product from Step 1.

Use the sum found in Step 2 - count from the right and place the decimal.

22.313

The final answer is 22.313

Multiply the numbers.

6.59 x 1.41	5.29 x 10	3.11 x 99.4	53.3 x 4.31	19.5 x 80.1
6.76 x 4.06	1.27 x 13	1.80 x 3.1	70.2 x 8.78	86.9 x 39.3
5.11 x 5.86	5.36 x 795	6.32 x 78.6	41.7 x 7.62	71.1 x 8.80
6.43 x 4.03	1.23 x 62	3.92 x 3.6	91.3 x 1.64	20.2 x 2.2
8.52 x 2.45	3.96 x 207	5.59 x 98.5	65.5 x 8.08	76.6 x 55.8
2.27 x 730	4.73 x 45.6	2.75 x 59.6	370 x 1.44	69.5 x 99.5

Real Life Math

Doug is a logger. He cuts a log that weighs 51.2 kilograms. Doug will send 0.75 of this log to be processed. What is the weight of the wood to be processed?



Dividing Decimals

Example $4.68 \div 3$

Step 1

Divide the dividend as a whole number.

$$\begin{array}{r} 1\,56 \\ 3\,\overline{)\,4.68} \\ \underline{3} \\ 16 \\ \underline{15} \\ 18 \\ \underline{18} \\ 0 \end{array}$$

Step 2

Place the decimal in the quotient above the decimal in the dividend.

$$\begin{array}{r} 1.56 \\ 3\,\overline{)\,4.68} \\ \underline{3} \\ 16 \\ \underline{15} \\ 18 \\ \underline{18} \\ 0 \end{array}$$

The final answer is 1.56

Divide the numbers.

5.54 ÷ 2	63.8 ÷ 2	0.843 ÷ 3
0.118 ÷ 2	78.5 ÷ 5	9.96 ÷ 3
5.14 ÷ 2	86.4 ÷ 3	0.415 ÷ 5
0.155 ÷ 5	15.3 ÷ 3	5.38 ÷ 2
1.83 ÷ 3	64.8 ÷ 4	0.644 ÷ 4
0.396 ÷ 6	55.8 ÷ 2	8.24 ÷ 2

Real Life Math

Ken works in a sporting goods store. He has a bag of balls that weighs 1.52 kilograms. There are 8 balls in the bag. What is the weight of each ball?

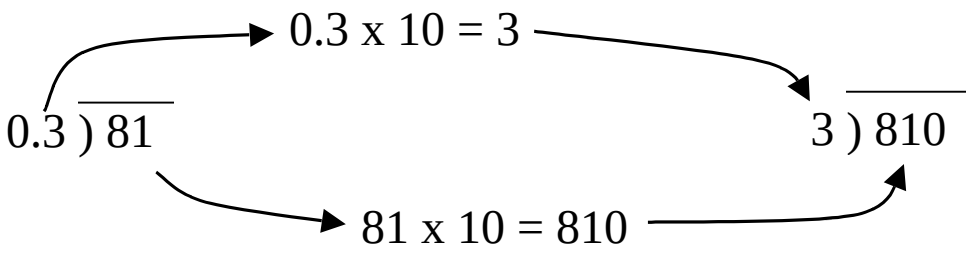


Dividing By Decimals

Example $81 \div 0.3$

Step 1

Multiply both the divisor and the dividend by the same number so that the new divisor is a whole number.



Step 2

Divide the new dividend from Step 1 by the new divisor from Step 1.

$$
\begin{array}{r}
270 \\
3\overline{)\,810} \\
\underline{6} \\
21 \\
\underline{21} \\
0
\end{array}
$$

The final answer is 270

Remember



If the divisor is in the tenths place, multiply it by ten to get a whole number.

$0.5 \times 10 = 5$

If the divisor is in the hundredths place, multiply it by one hundred to get a whole number.

$0.05 \times 100 = 5$

If the divisor is in the thousandths place, multiply it by one thousand to get a whole number.

$0.005 \times 1000 = 5$

Divide the numbers.

$42 \div 0.7$ $40 \div 0.8$ $68 \div 0.4$

77 ÷ 0.7	24 ÷ 0.6	86 ÷ 0.2
232 ÷ 0.04	578 ÷ 0.02	784 ÷ 0.04
309 ÷ 0.03	456 ÷ 0.04	916 ÷ 0.04
326 ÷ 0.02	610 ÷ 0.05	865 ÷ 0.05
822 ÷ 0.002	860 ÷ 0.005	432 ÷ 0.004
596 ÷ 0.002	180 ÷ 0.009	430 ÷ 0.005
500 ÷ 0.005	885 ÷ 0.003	662 ÷ 0.002

Real Life Math

Carol works for a lawn care company. At the start of the day, she puts powdered pesticide into spray containers and adds water. Carol has 36 kilograms of powder on hand. In order to get the right mixture, she must add 0.6 kilograms of powder per container. How many spray containers can Carol fill with this amount of pesticide?

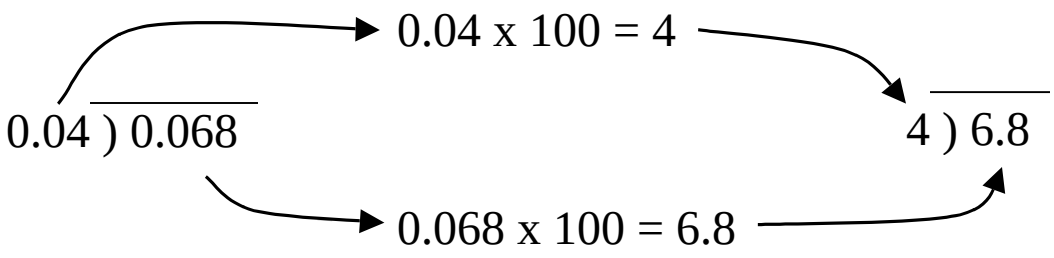


Dividing Decimals By Decimals

Example $0.068 \div 0.04$

Step 1

Multiply both the divisor and the dividend by the same number so that the new divisor is a whole number.



Step 2

Divide the new dividend from Step 1 by the new divisor from Step 1.

$$
\begin{array}{r}
1.7 \\
4\overline{)\,6.8} \\
\underline{4} \\
28 \\
\underline{28} \\
0
\end{array}
$$

The final answer is 1.7

Divide the numbers.

7.5 ÷ 0.5	9.9 ÷ 0.3	1.2 ÷ 0.4
0.28 ÷ 0.7	0.54 ÷ 0.9	0.44 ÷ 0.4
78.8 ÷ 0.4	5.76 ÷ 0.3	0.939 ÷ 0.3
378.2 ÷ 0. 2	94.64 ÷ 0.4	4.296 ÷ 0.3
5.5 ÷ 0.05	9.5 ÷ 0.05	1.2 ÷ 0.04
0.27 ÷ 0.09	0.77 ÷ 0.07	0.62 ÷ 0.02

31.4 ÷ 0.02	1.42 ÷ 0.02	0.586 ÷ 0.02
695.4 ÷ 0.06	55.28 ÷ 0.04	9.322 ÷ 0.02
87.8 ÷ 0.002	42.5 ÷ 0.005	2.16 ÷ 0.003
1.42 ÷ 0.002	0.972 ÷ 0.009	0.875 ÷ 0.005
845.5 ÷ 0.005	545.8 ÷ 0.002	46.04 ÷ 0.004
94.84 ÷ 0.004	2.298 ÷ 0.006	0.9008 ÷ 0.002

Real Life Math

Chuck works in a factory that makes bearings. Today he is filling boxes. A box of bearings weighs 21.7 kilograms. Each bearing weighs 0.07 kilograms. How many bearings are in each box?



Percent

The symbol **%** means “percent” and refers to an amount out of 100.

1% is the same as $\frac{1}{100}$ or .01

For example,

$$24\% = 24 \times \frac{1}{100} = \frac{24}{100} \text{ or } \frac{6}{25}$$

or

$$24\% = 24 \times .01 = .24$$

Convert each percent to both fraction and decimal forms.

Percent	Fraction	Decimal
28%		
12%		
8%		
31%		
60%		

Calculating Percentage

Example 31% of 642

Step 1

Convert the percent to a decimal figure.

31% = 0.31

Step 2

Multiply the number by the figure found in Step 1.

642
x 0.31
642
19260
199.02

The final answer is 199.02

Find the percentages

95% of 162 =

39% of 75 =

51% of 145 =

9% of 831 =

80% of 131 =

57% of 759 =

79% of 204 =

4% of 288 =

22% of 982 =

54% of 206 =

87% of 387 =

25% of 118 =

14% of 676 =

17% of 508 =

39% of 65.1 =

44% of 6.22 =

66% of 9.25 =

35% of 98.7 =

39% of 5.9 =

67% of 6.8 =

Real Life Math

Sandra works in commission sales. She is paid 7% of her sales. Sandra's sales in a week total $3800. How much will she earn that week?



Addendum I

Multiplication Table

X	0	1	2	3	4	5	6	7	8	9
0	0	0	0	0	0	0	0	0	0	0
1	0	1	2	3	4	5	6	7	8	9
2	0	2	4	6	8	10	12	14	16	18
3	0	3	6	9	12	15	18	21	24	27
4	0	4	8	12	16	20	24	28	32	36
5	0	5	10	15	20	25	30	35	40	45
6	0	6	12	18	24	30	36	42	48	54
7	0	7	14	21	28	35	42	49	56	63
8	0	8	16	24	32	40	48	56	64	72
9	0	9	18	27	36	45	54	63	72	81

Answer Key

Add the numbers. *(Page 1)*

355 + 623 978	881 + 6 887	515 + 411 926	271 + 308 579
588 + 313 901	658 + 201 859	869 + 130 999	358 + 611 969
951 + 28 979	617 + 342 959	501 + 98 599	531 + 218 749

Subtract the numbers. *(Page 2)*

725 - 481 244	658 - 471 187	648 - 542 106	948 - 715 233
634 - 63 571	558 - 253 305	726 - 66 660	834 - 8 826
617 - 542 75	453 - 374 79	768 - 364 404	732 - 378 354
843 - 586 257	947 - 871 76	433 - 278 155	556 - 374 182

Multiply the numbers. *(Pages 5-6)*

6 x 9 = 54	1 x 4 = 4	5 x 2 = 10	0 x 1 = 0	3 x 4 = 12
7 x 7 = 49	4 x 9 = 36	2 x 1 = 2	9 x 9 = 81	5 x 4 = 20
9 x 5 = 45	8 x 1 = 8	1 x 3 = 3	1 x 2 = 2	2 x 2 = 4
9 x 4 = 36	3 x 3 = 9	0 x 4 = 0	9 x 8 = 72	6 x 2 = 12
9 x 7 = 63	3 x 2 = 6	7 x 0 = 0	4 x 8 = 32	6 x 8 = 48
9 x 2 = 18	6 x 4 = 24	1 x 5 = 5	7 x 6 = 42	4 x 2 = 8
1 x 8 = 8	7 x 2 = 14	8 x 2 = 16	2 x 0 = 0	4 x 1 = 4
1 x 7 = 7	2 x 3 = 6	6 x 7 = 42	4 x 5 = 20	7 x 5 = 35
1 x 6 = 6	2 x 9 = 18	2 x 8 = 16	5 x 1 = 5	3 x 9 = 27

Real Life Math *(Page 7)*

Diane will send 8 shipments in 4 weeks.

54 apples would be needed to fill 9 baskets.

Multiply the numbers. *(Page 9)*

62	14	32	42	93
x 1	x 2	x 4	x 1	x 0
62	28	128	42	0
24	13	71	28	21
x 2	x 3	x 3	x 1	x 6
48	39	213	28	126
83	12	41	30	83
x 3	x 4	x 1	x 3	x 2
249	48	41	90	166
73	23	32	22	52
x 2	x 3	x 4	x 0	x 4
146	69	128	0	208
91	62	11	99	42
x 7	x 3	x 0	x 1	x 3
631	186	0	99	126
24	15	34	41	97
x 1	x 1	x 2	x 4	x 0
24	15	68	164	0

Multiply the numbers. *(Page 11)*

46	53	32	12	52
x 2	x 1	x 3	x 2	x 0
92	53	96	24	0
39	15	31	80	23
x 2	x 6	x 0	x 0	x 2
78	90	0	0	46
14	58	26	29	83
x 3	x 1	x 3	x 1	x 0
42	58	78	29	0
43	23	32	22	52
x 2	x 4	x 3	x 4	x 1
86	92	96	88	52
91	22	11	99	42
x 0	x 3	x 0	x 1	x 2
0	66	0	99	84
24	15	17	41	96
x 4	x 6	x 4	x 2	x 0
96	90	68	82	0

Real life Math *(Page 12)*

Mark would expect to sell 75 radios in 3 weeks.

2 radios would cost $78.

Multiply the numbers. *(Page 14)*

96	54	16	47	11
x 2	x 5	x 1	x 7	x 2
192	270	16	329	22
46	45	23	24	92
x 1	x 6	x 5	x 9	x 7
46	270	115	216	644
18	42	64	25	44
x 6	x 6	x 8	x 1	x 8
108	252	512	25	352
83	30	93	47	18
x 5	x 3	x 7	x 6	x 4
415	90	651	282	72
74	33	51	10	93
x 0	x 1	x 8	x 6	x 9
0	33	408	60	837
59	73	14	60	93
x 9	x 4	x 2	x 4	x 6
531	292	28	240	558

Real Life Math *(Page 15)*

Jim has 208 nails.

He should expect to use 468 nails in a week.

Multiply the numbers. *(Pages 18-19)*

303	577	576	175	474
x 9	x 7	x 9	x 5	x 1
2727	4039	5184	875	474
870	168	464	648	485
x 3	x 3	x 3	x 7	x 5
2610	504	1392	4536	2425
183	405	104	463	965
x 1	x 3	x 3	x 0	x 6
183	1215	312	0	5790
617	523	572	427	458
x 2	x 8	x 0	x 6	x 2
1234	4184	0	2562	916
976	308	905	712	338
x 9	x 5	x 9	x 3	x 3
8784	1540	8145	2136	1014
188	822	361	272	255
x 4	x 3	x 7	x 1	x 2
752	2466	2527	272	510
278	210	926	724	154
x 2	x 6	x 1	x 7	x 5
556	1260	926	5068	770
738	767	920	439	593
x 4	x 6	x 0	x 5	x 6
2952	4602	0	2195	3558
315	796	693	511	749
x 1	x 3	x 8	x 9	x 2
315	2388	5544	4599	1498
278	662	864	771	434
x 4	x 5	x 7	x 3	x 1
1112	3310	6048	2313	434
272	700	765	512	808
x 6	x 4	x 6	x 2	x 9
1632	2800	4590	1024	7272
655	251	950	573	485
x 4	x 4	x 7	x 8	x 8
2620	1004	6650	4584	3880

Real Life Math *(Page 20)*

Paul should order 4130 cartons of milk for one week.

Multiply the numbers. *(Page 22)*

34 x 22 748	37 x 11 407	30 x 33 990	31 x 23 713	43 x 21 903
20 x 44 880	42 x 20 840	55 x 11 605	43 x 22 946	24 x 21 504
82 x 11 902	41 x 22 902	24 x 12 288	14 x 20 280	11 x 83 913
24 x 22 528	32 x 32 1024	13 x 33 429	44 x 21 924	19 x 11 209
41 x 21 861	29 x 11 319	20 x 43 860	11 x 70 770	22 x 40 880
11 x 39 429	30 x 23 690	10 x 19 190	41 x 20 820	31 x 32 992

Real Life Math *(Page 23)*

There are 144 eggs in each box.

Multiply the numbers. *(Pages 25-26)*

91	32	53	87	86
x 97	x 51	x 50	x 3	x 33
8827	1632	2650	261	2838
55	45	18	35	40
x 0	x 4	x 87	x 9	x 16
0	180	1566	315	640
89	99	58	35	62
x 57	x 41	x 24	x 65	x 67
5073	4059	1392	2275	4154
16	61	10	14	17
x 92	x 88	x 34	x 47	x 72
1472	5368	340	658	1224
55	69	58	44	63
x 7	x 83	x 1	x 6	x 10
385	5727	58	264	630
26	57	84	21	70
x 92	x 96	x 5	x 83	x 10
2392	5472	420	1743	700
78	93	62	35	43
x 23	x 6	x 66	x 38	x 66
1794	558	4092	1330	2838
10	80	85	75	80
x 47	x 78	x 4	x 99	x 20
470	6240	340	7425	1600
89	91	42	54	56
x 67	x 96	x 8	x 95	x 48
5963	8736	336	5130	2688
25	59	83	63	23
x 14	x 9	x 52	x 65	x 16
350	531	4316	4095	368
79	63	18	26	84
x 11	x 51	x 26	x 65	x 89
869	3213	468	1690	7476
54	31	61	93	91
x 81	x 32	x 57	x 0	x 40
4374	992	3477	0	3640

Real Life Math (Page 27)

Jean will type 795 words in 15 minutes.

Multiply the numbers. *(Pages 29-30)*

102	155	572	889	384
x 53	x 4	x 89	x 23	x 79
5406	620	50908	20447	30336
280	194	811	308	219
x 13	x 95	x 6	x 72	x 52
3640	18430	4866	22176	11388
544	725	774	363	941
x 0	x 28	x 9	x 66	x 32
0	20300	6966	23958	30112
249	533	294	495	446
x 33	x 27	x 20	x 49	x 7
8217	14391	5880	24255	3122
750	909	249	339	676
x 70	x 25	x 46	x 25	x 77
52500	22725	11454	8475	52052
485	296	233	312	589
x 75	x 85	x 34	x 40	x 78
36375	25160	7922	12480	45942
809	874	694	987	137
x 46	x 19	x 97	x 71	x 61
37214	16606	67318	70077	8357
287	776	206	243	337
x 43	x 98	x 33	x 90	x 11
12341	76048	6798	21870	3707
848	639	591	938	636
x 52	x 88	x 34	x 54	x 34
44096	56232	20094	50652	21624
710	386	723	828	250
x 45	x 64	x 54	x 18	x 24
31950	24704	39042	14904	6000
914	768	600	291	448
x 51	x 46	x 32	x 96	x 28
46614	35328	19200	27936	12544
848	417	580	536	948
x 5	x 84	x 51	x 61	x 32
4240	35028	29580	32696	30336

Real Life Math *(Page 31)*

Carla should plan to sell 6375 magazines in 25 days.

Multiply the numbers. *(Pages 33-34)*

490	131	117	435	166
x 171	x 39	x 634	x 997	x 7
83790	5109	74178	433695	1162
100	884	108	645	143
x 862	x 589	x 512	x 788	x 135
86200	520676	55296	508260	19305
403	298	308	934	762
x 308	x 488	x 965	x 271	x 889
124124	145424	297220	253114	677418
227	281	893	646	598
x 301	x 86	x 555	x 588	x 401
68327	24166	495615	379848	239798
673	717	743	574	671
x 441	x 94	x 104	x 170	x 713
296793	67398	77272	97580	478423
573	809	909	250	376
x 604	x 517	x 281	x 919	x 86
346092	418253	255429	229750	32336
544	844	205	584	270
x 690	x 686	x 578	x 68	x 386
375360	578984	118490	39712	104220
637	408	460	858	466
x 52	x 533	x 84	x 287	x 47
33124	217464	38640	246246	21902
241	888	924	653	788
x 506	x 825	x 532	x 477	x 644
121946	732600	491568	311481	507472
572	835	579	531	306
x 356	x 682	x 20	x 269	x 429
203632	569470	11580	142839	131274
844	655	138	397	152
x 218	x 499	x 761	x 930	x 603
183992	326845	105018	369210	91656
541	905	989	624	605
x 714	x 776	x 533	x 11	x 904
386274	702280	527137	6864	546920

Real Life Math *(Page 35)*

Kelly should expect to produce 258,125 shirts in a year.

Divide *(Page 37)*

7 ÷ 1 = 7	9 ÷ 3 = 3	6 ÷ 2 = 3	2 ¸ 1 = 2
4 ¸ 2 = 2	6 ¸ 3 = 2	8 ¸ 4 = 2	8 ¸ 2= 4
2 4) 8	**2** 3) 6	**4** 2) 8	**2** 2) 4
2 1) 2	**3** 2) 6	**7** 1) 7	**3** 3) 9

Real Life Math *(Page 38)*

Jerry is waiting on 4 tables.

Divide *(Pages 40-41)*

56 ÷ 7 = 8	28 ÷ 4 = 7	21 ÷ 3 = 7	35 ¸ 5 = 7
27 ¸ 9 = 3	45 ¸ 5 = 9	30 ¸ 6 = 5	45 ¸ 9 = 5
3 4) 12	**6** 9) 54	**3** 6) 18	**5** 8) 40
3 5) 15	**7** 8) 56	**2** 9) 18	**2** 5) 10
6 5) 30	**2** 3) 6	**2** 2) 4	**6** 7) 42
8 6) 48	**0** 0) 79	**4** 7) 28	**7** 6) 42
5 5) 25	**9** 3) 27	**4** 4) 16	**3** 7) 21
6 6) 36	**8** 5) 40	**7** 7) 49	**6** 3) 18
8 8) 64	**5** 3) 15	**9** 9) 81	**4** 9) 36
5 3) 15	**9** 6) 54	**4** 3) 12	**5** 2) 10
4 8) 32	**3** 2) 6	**7** 2) 14	**0** 0) 42

Real Life Math *(Page 43)*

Leo needs to buy 4 packages of paper towels.

He will need to buy 6 packages of paper towels to get 24 rolls.

Divide *(Page 45)*

24 2) 48	**0** 0) 37	**6** 3) 18	**47** 1) 47
18 3) 54	**10** 7) 70	**18** 5) 90	**13** 2) 26
4 8) 32	**13** 4) 52	**11** 6) 66	**19** 4) 76
11 4) 44	**19** 2) 38	**4** 8) 32	**5** 5) 25
47 2) 94	**11** 8) 88	**10** 5) 50	**2** 9) 18
25 3) 75	**3** 7) 21	**5** 4) 20	**19** 5) 95

Real Life Math *(Page 46)*

There are 9 parking spaces per row.

Divide *(Pages 48-49)*

7 r3 5) 38	**3 r2** 4) 14	**3 r2** 6) 20	**8 r1** 4) 33
3 r2 3) 11	**6 r1** 2) 13	**5 r2** 5) 27	**7 r3** 7) 52
8 r1 2) 17	**6 r6** 8) 54	**9 r3** 5) 48	**6 r1** 5) 31
4 r3 5) 23	**9 r7** 8) 79	**9 r2** 8) 74	**5 r3** 4) 23
9 r8 9) 89	**8 r2** 6) 50	**9 r2** 6) 56	**8 r1** 3) 25
3 r1 3) 10	**5 r1** 3) 16	**7 r1** 6) 43	**7 r2** 4) 30
9 r6 7) 69	**6 r3** 6) 39	**8 r3** 5) 43	**9 r4** 6) 58
2 r3 6) 15	**8 r6** 8) 70	**9 r1** 2) 19	**8 r4** 8) 68
7 r6 8) 62	**6 r3** 4) 27	**7 r2** 6) 44	**7 r1** 4) 29
3 r3 6) 21	**7 r4** 5) 39	**2 r4** 5) 14	**6 r1** 7) 43

Real Life Math *(Page 50)*

John can cut three 8-metre lengths of wire from this spool?

6 metres of wire will be left over?

Divide *(Page 52)*

3 r12 20) 72	**3 r12** 24) 84	**1 r34** 61) 95	**3 r14** 16) 62
3 r12 25) 87	**2 r19** 33) 85	**2 r2** 36) 74	**2 r4** 46) 96
4 r14 20) 94	**2 r31** 32) 95	**2 r19** 24) 67	**4 r7** 12) 55
2 20) 40	**2 r17** 36) 89	**4 r10** 13) 62	**6 r3** 10) 63
6 r1 14) 85	**8 r8** 10) 88	**4 r6** 11) 50	**1 r4** 14) 18
2 r23 26) 75	**3 r4** 15) 49	**1 r6** 14) 20	**2 r31** 32) 95

Real Life Math *(Page 53)*

Each employee will clean 6 rooms.

There will be 1 room left over for Roy to take care of himself.

Divide *(Pages 56-57)*

352 r1 2)705	**0** 0)529	**176 r2** 3)530	**119** 4)476
102 r2 5)512	**281 r1** 2)563	**143** 1)143	**106 r4** 6)640
100 r3 8)803	**119 r1** 7)834	**127 r2** 6)764	**100 r4** 6) 604
126 4)504	**179 r1** 2)359	**103 r5** 6)623	**101** 8)808
110 r2 3)332	**270** 2)540	**115 r2** 4)462	**121 r6** 7)853
105 r2 9)947	**187 r1** 2)375	**158 r2** 3) 476	**111** 4) 444

107 r1 7)750	**103 r2** 5)517	**147 r5** 6)887	**158** 1)158
118 r3 6)711	**95 r1** 5)476	**104 r2** 3)314	**123 r3** 7)864
141 r2 3)425	**111 r4** 6)670	**121** 3)363	**110 r6** 8)886
127 r3 7)892	**107** 9)963	**107 r4** 6)646	**129 r1** 3)388
157 r2 4)630	**105 r1** 5)526	**0** 0)506	**185** 2)370
105 r5 6)635	**148 r1** 3)445	**116 r1** 4)465	**243 r1** 2)487

Real Life Math *(Page 58)*

There will be 101 loads of laundry.

6 sheets will be left over to make up a partial load.

Divide *(Page 60)*

28 r5 33) 929	**12 r7** 29) 355	**15 r9** 45) 684
17 51) 867	**10 r12** 45) 462	**10 r11** 82) 831
13 r42 49) 679	**12 r31** 47) 595	**10 r74** 92) 994
11 r15 60) 675	**13 r11** 35) 466	**14 r20** 50) 720
18 r11 14) 263	**11 r1** 78) 859	**11 r4** 83) 917
10 r36 84) 876	**12 r19** 52) 643	**11 r53** 82) 955

Real Life Math *(Page 61)*

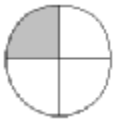
Scott will drop 30 cases of oil at each station.

9 cases of oil will be left over.

(Pages 63-64)

Write a fraction below each figure that shows how much of the figure is shaded.

Write another fraction below each figure that shows how much of the figure is not shaded.



$\frac{1}{4}$

$\frac{3}{4}$



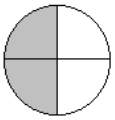
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$\frac{3}{5}$



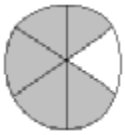
$\frac{1}{3}$

$\frac{2}{3}$



$\frac{2}{4}$

$\frac{2}{4}$



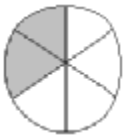
$\frac{5}{6}$

$\frac{1}{6}$



$\frac{7}{10}$

$\frac{3}{10}$



$\frac{2}{6}$

$\frac{4}{6}$



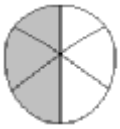
$\frac{3}{5}$

$\frac{2}{5}$



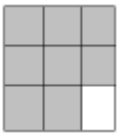
$\frac{7}{8}$

$\frac{1}{8}$



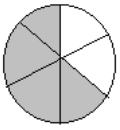
$\frac{3}{6}$

$\frac{3}{6}$



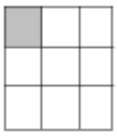
$\frac{8}{9}$

$\frac{1}{9}$



$\frac{4}{6}$

$\frac{2}{6}$



$\frac{1}{9}$

$\frac{8}{9}$



$\frac{2}{3}$

$\frac{1}{3}$



$\frac{1}{2}$

$\frac{1}{2}$



$\frac{4}{5}$

$\frac{1}{5}$



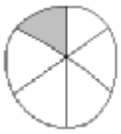
$\frac{6}{10}$

$\frac{4}{10}$



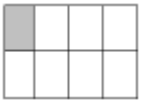
$\frac{1}{5}$

$\frac{4}{5}$



$\frac{1}{6}$

$\frac{5}{6}$



$\frac{1}{8}$

$\frac{7}{8}$

Write a fraction for each of the following. *(Page 65)*

eight ninths	$\frac{8}{9}$	three eights	$\frac{3}{8}$	one third	$\frac{1}{3}$
five ninths	$\frac{5}{9}$	two sevenths	$\frac{2}{7}$	one quarter	$\frac{1}{4}$
two thirds	$\frac{2}{3}$	five eighths	$\frac{5}{8}$	nine tenths	$\frac{9}{10}$
one sixth	$\frac{1}{6}$	one half	$\frac{1}{2}$	four fifths	$\frac{4}{5}$

Shade or colour each picture to reflect the fraction. *(Pages 65-66)*

$\frac{1}{8}$



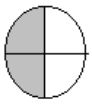
$\frac{4}{5}$

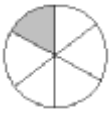


$\frac{4}{6}$



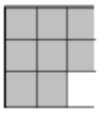
$\frac{3}{5}$ 

$\frac{2}{4}$ 

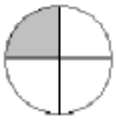
$\frac{1}{6}$ 

$\frac{1}{2}$ 

$\frac{1}{3}$ 

$\frac{8}{9}$ 

$\frac{3}{10}$ 

$\frac{1}{4}$ 

$\frac{5}{6}$ 

Convert each fraction to its simplest form. *(Page 68)*

$\frac{2}{4} \rightarrow \frac{1}{2}$ $\frac{24}{88} \rightarrow \frac{3}{11}$ $\frac{23}{46} \rightarrow \frac{1}{2}$ $\frac{9}{54} \rightarrow \frac{1}{6}$

$\frac{7}{14} \rightarrow \frac{1}{2}$ $\frac{27}{81} \rightarrow \frac{1}{3}$ $\frac{6}{18} \rightarrow \frac{1}{3}$ $\frac{2}{26} \rightarrow \frac{1}{13}$

$\frac{4}{68} \rightarrow \frac{1}{17}$ $\frac{40}{72} \rightarrow \frac{5}{9}$ $\frac{30}{50} \rightarrow \frac{3}{5}$ $\frac{66}{99} \rightarrow \frac{2}{3}$

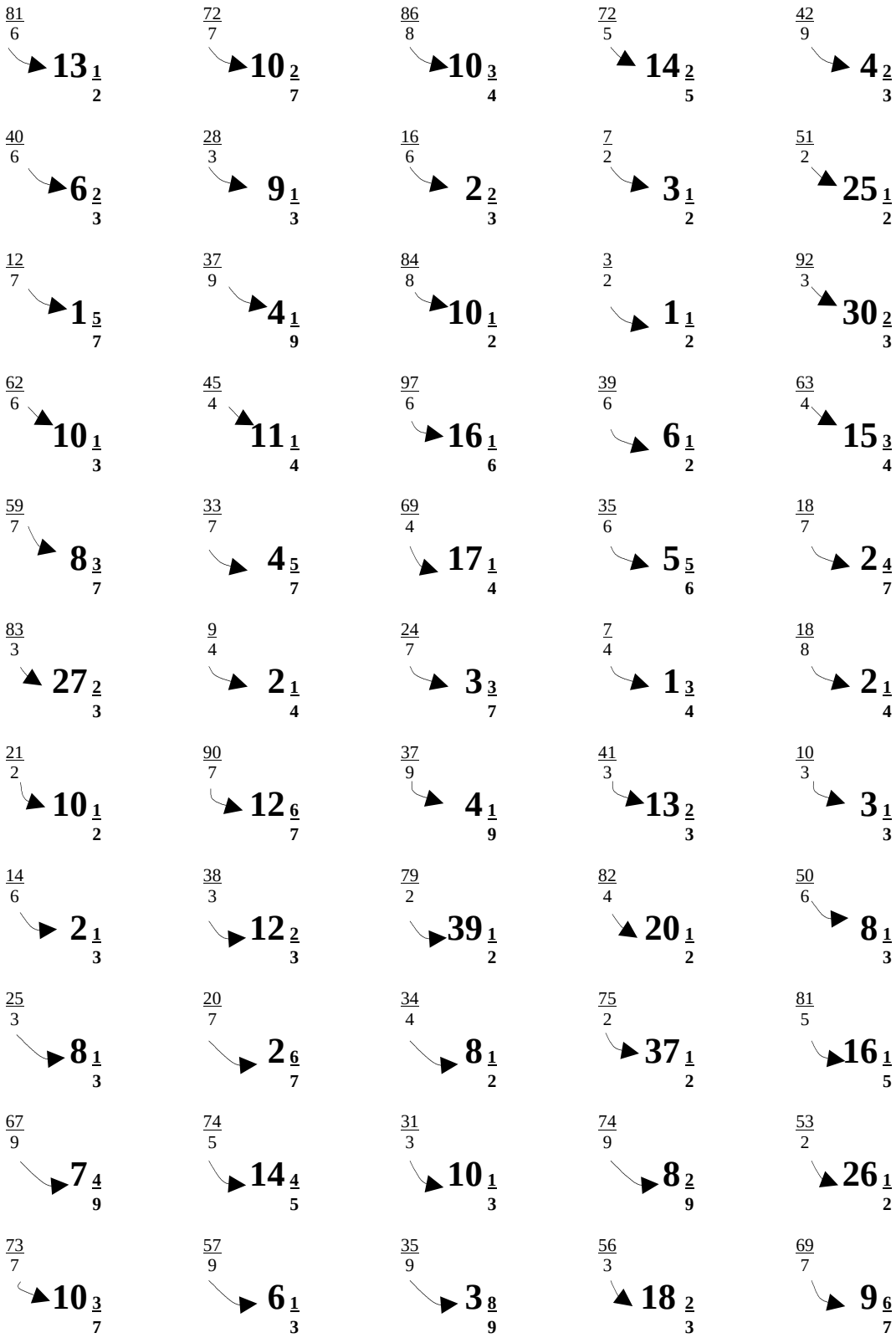
$\frac{12}{30} \rightarrow \frac{2}{5}$ $\frac{6}{9} \rightarrow \frac{2}{3}$ $\frac{14}{21} \rightarrow \frac{2}{3}$ $\frac{55}{90} \rightarrow \frac{11}{18}$

$\frac{24}{40} \rightarrow \frac{3}{5}$ $\frac{18}{96} \rightarrow \frac{3}{16}$ $\frac{12}{16} \rightarrow \frac{3}{4}$ $\frac{3}{9} \rightarrow \frac{1}{3}$

$\frac{11}{66} \rightarrow \frac{1}{6}$ $\frac{10}{40} \rightarrow \frac{1}{4}$ $\frac{25}{75} \rightarrow \frac{1}{3}$ $\frac{9}{36} \rightarrow \frac{1}{4}$

Convert the following fractions to mixed numbers. *(Pages 70-71)*

$\frac{12}{9} \rightarrow 1\frac{1}{3}$ $\frac{86}{6} \rightarrow 14\frac{1}{3}$ $\frac{49}{4} \rightarrow 12\frac{1}{4}$ $\frac{37}{4} \rightarrow 9\frac{1}{4}$ $\frac{24}{9} \rightarrow 2\frac{2}{3}$


81 6 13 1 2
72 7 10 2 7
86 8 10 3 4
72 5 14 2 5
42 9 4 2 3
40 6 6 2 3
28 3 9 1 3
16 6 2 2 3
7 2 3 1 2
51 2 25 1 2
12 7 1 5 7
37 9 4 1 9
84 8 10 1 2
3 2 1 1 2
92 3 30 2 3
62 6 10 1 3
45 4 11 1 4
97 6 16 1 6
39 6 6 1 2
63 4 15 3 4
59 7 8 3 7
33 7 4 5 7
69 4 17 1 4
35 6 5 5 6
18 7 2 4 7
83 3 27 2 3
9 4 2 1 4
24 7 3 3 7
7 4 1 3 4
18 8 2 1 4
21 2 10 1 2
90 7 12 6 7
37 9 4 1 9
41 3 13 2 3
10 3 3 1 3
14 6 2 1 3
38 3 12 2 3
79 2 39 1 2
82 4 20 1 2
50 6 8 1 3
25 3 8 1 3
20 7 2 6 7
34 4 8 1 2
75 2 37 1 2
81 5 16 1 5
67 9 7 4 9
74 5 14 4 5
31 3 10 1 3
74 9 8 2 9
53 2 26 1 2
73 7 10 3 7
57 9 6 1 3
35 9 3 8 9
56 3 18 2 3
69 7 9 6 7

Add the fractions. *(Page 73)*

$\frac{2}{9} + \frac{2}{9} = \frac{4}{9}$

$\frac{2}{5} + \frac{2}{5} = \frac{4}{5}$

$\frac{2}{7} + \frac{2}{7} = \frac{4}{7}$

$\frac{3}{7} + \frac{3}{7} = \frac{6}{7}$

$\frac{3}{10} + \frac{7}{10} = 1$

$\frac{3}{8} + \frac{1}{8} = \frac{1}{2}$

$\frac{1}{6} + \frac{5}{6} = 1$

$\frac{5}{8} + \frac{1}{8} = \frac{3}{4}$

$\frac{5}{6} + \frac{5}{6} = 1\frac{2}{3}$

$\frac{5}{8} + \frac{3}{8} = 1$

$\frac{1}{9} + \frac{4}{9} = \frac{5}{9}$

$\frac{1}{5} + \frac{2}{5} = \frac{3}{5}$

Real Life Math *(Page 74)*

Ron has $1\frac{1}{3}$ metres of wooden border on hand.

Add the fractions. *(Pages 76-77)*

$\frac{1}{3} + \frac{1}{2} = \frac{5}{6}$

$\frac{2}{3} + \frac{1}{9} = \frac{7}{9}$

$\frac{1}{6} + \frac{5}{7} = \frac{37}{42}$

$\frac{3}{7} + \frac{1}{3} = \frac{16}{21}$

$\frac{2}{9} + \frac{1}{6} = \frac{7}{18}$

$\frac{1}{3} + \frac{5}{6} = 1\frac{1}{6}$

$\frac{3}{4} + \frac{1}{2} = 1\frac{1}{4}$

$\frac{2}{3} + \frac{1}{2} = 1\frac{1}{6}$

$\frac{2}{3} + \frac{1}{7} = \frac{17}{21}$

$\frac{1}{2} + \frac{2}{9} = \frac{13}{18}$

$\frac{5}{7} + \frac{3}{4} = 1\frac{13}{28}$

$\frac{2}{7} + \frac{2}{9} = \frac{32}{63}$

$\frac{8}{9} + \frac{1}{2} = 1\frac{7}{18}$

$\frac{1}{8} + \frac{2}{5} = \frac{21}{40}$

$\frac{7}{9} + \frac{1}{3} = 1\frac{1}{9}$

$\frac{1}{2} + \frac{1}{4} = \frac{3}{4}$

Real Life Math *(Page 78)*

Adam will add $1\frac{1}{12}$ cups of liquid to the saucepan.

Subtract the fractions. *(Page 80)*

$\frac{4}{7} - \frac{3}{7} = \frac{1}{7}$

$\frac{7}{8} - \frac{3}{8} = \frac{1}{2}$

$\frac{5}{8} - \frac{2}{8} = \frac{3}{8}$

$\frac{7}{10} - \frac{3}{10} = \frac{2}{5}$

$\frac{9}{10} - \frac{3}{10} = \frac{3}{5}$

$\frac{4}{9} - \frac{1}{9} = \frac{1}{3}$

$\frac{5}{8} - \frac{1}{8} = \frac{1}{2}$

$\frac{2}{5} - \frac{1}{5} = \frac{1}{5}$

$\frac{4}{7} - \frac{2}{7} = \frac{2}{7}$

$\frac{4}{5} - \frac{2}{5} = \frac{2}{5}$

$\frac{5}{9} - \frac{4}{9} = \frac{1}{9}$

$\frac{3}{5} \quad \frac{2}{5} = \frac{1}{5}$

Real Life Math *(Page 81)*

$\frac{3}{5}$ of a metre of material is left on the roll.

Subtract the fractions. *(Pages 83-85)*

$\frac{1}{2} - \frac{1}{5} = \frac{3}{10}$ $\frac{9}{10} - \frac{1}{9} = \frac{71}{90}$ $\frac{2}{3} - \frac{3}{5} = \frac{1}{15}$

$\frac{7}{9} - \frac{3}{8} = \frac{29}{72}$ $\frac{3}{7} - \frac{1}{9} = \frac{20}{63}$ $\frac{3}{4} - \frac{4}{7} = \frac{5}{28}$

$\frac{5}{7} - \frac{3}{10} = \frac{29}{70}$ $\frac{3}{5} - \frac{1}{2} = \frac{1}{10}$ $\frac{3}{5} - \frac{1}{3} = \frac{4}{15}$

$\frac{3}{4} - \frac{2}{3} = \frac{1}{12}$ $\frac{3}{10} - \frac{1}{9} = \frac{17}{90}$ $\frac{4}{5} - \frac{2}{3} = \frac{2}{15}$

$\frac{5}{7} - \frac{1}{2} = \frac{3}{14}$ $\frac{5}{6} - \frac{1}{2} = \frac{1}{3}$ $\frac{5}{7} - \frac{5}{9} = \frac{10}{63}$

$\frac{7}{10} - \frac{1}{4} = \frac{9}{20}$ $\frac{3}{8} - \frac{1}{9} = \frac{19}{72}$ $\frac{1}{3} - \frac{1}{9} = \frac{2}{9}$

$\frac{2}{5} - \frac{1}{4} = \frac{3}{20}$ $\frac{5}{9} - \frac{1}{8} = \frac{31}{72}$ $\frac{4}{5} - \frac{1}{8} = \frac{27}{40}$

$\frac{7}{9} - \frac{3}{10} = \frac{43}{90}$ $\frac{5}{7} - \frac{3}{5} = \frac{4}{35}$ $\frac{4}{9} - \frac{2}{5} = \frac{2}{45}$

$\frac{3}{4} - \frac{1}{3} = \frac{5}{12}$ $\frac{3}{4} - \frac{1}{2} = \frac{1}{4}$ $\frac{3}{4} - \frac{3}{7} = \frac{9}{28}$

$\frac{3}{8} - \frac{1}{5} = \frac{7}{40}$ $\frac{2}{7} - \frac{1}{5} = \frac{3}{35}$ $\frac{2}{3} - \frac{2}{7} = \frac{8}{21}$

$\frac{1}{2} - \frac{1}{4} = \frac{1}{4}$ $\frac{4}{5} - \frac{1}{7} = \frac{23}{35}$ $\frac{2}{5} - \frac{1}{3} = \frac{1}{15}$

$\frac{7}{10} - \frac{1}{2} = \frac{1}{5}$ $\frac{5}{8} - \frac{5}{9} = \frac{5}{72}$ $\frac{9}{10} - \frac{5}{9} = \frac{31}{90}$

$\frac{3}{4} - \frac{4}{9} = \frac{11}{36}$ $\frac{2}{3} - \frac{3}{10} = \frac{11}{30}$ $\frac{4}{5} - \frac{1}{2} = \frac{3}{10}$

$\frac{1}{3} - \frac{1}{5} = \frac{2}{15}$ $\frac{8}{9} - \frac{6}{7} = \frac{2}{63}$ $\frac{3}{7} - \frac{1}{3} = \frac{2}{21}$

Real Life Math *(Page 86)*

There will be $\frac{11}{20}$ of a barrel of fuel left by noon.

Multiply the fractions. *(Pages 88 – 89)*

$\frac{3}{4} \times \frac{3}{7} = \frac{9}{28}$ $\frac{8}{9} \times \frac{1}{7} = \frac{8}{63}$

$\frac{3}{5} \times \frac{5}{6} = \frac{1}{2}$ $\frac{4}{5} \times \frac{1}{9} = \frac{4}{45}$

$\frac{5}{8} \times \frac{1}{2} = \frac{5}{16}$ $\frac{7}{8} \times \frac{1}{2} = \frac{7}{16}$

$\frac{3}{5} \times \frac{4}{9} = \frac{4}{15}$ $\frac{2}{7} \times \frac{1}{2} = \frac{1}{7}$

$\frac{3}{5} \times \frac{4}{5} = \frac{12}{25}$ $\frac{1}{3} \times \frac{3}{4} = \frac{1}{4}$

$\frac{1}{2} \times \frac{4}{9} = \frac{2}{9}$

$\frac{4}{5} \times \frac{7}{8} = \frac{7}{10}$

$\frac{1}{2} \times \frac{3}{10} = \frac{3}{20}$

$\frac{2}{3} \times \frac{3}{7} = \frac{2}{7}$

$\frac{1}{3} \times \frac{4}{9} = \frac{4}{27}$

$\frac{1}{2} \times \frac{3}{8} = \frac{3}{16}$

$\frac{1}{2} \times \frac{5}{9} = \frac{5}{18}$

$\frac{1}{2} \times \frac{1}{6} = \frac{1}{12}$

$\frac{9}{10} \times \frac{4}{5} = \frac{18}{25}$

$\frac{1}{5} \times \frac{2}{3} = \frac{2}{15}$

$\frac{1}{9} \times \frac{1}{6} = \frac{1}{54}$

$\frac{5}{8} \times \frac{2}{5} = \frac{1}{4}$

Real Life Math *(Page 90)*

The second piece of pipe will be $\frac{1}{3}$ of a metre in length.

Multiply the fractions. *(Pages 92-93)*

$9 \times \frac{2}{3} = 6$

$10 \times \frac{3}{8} = 3\frac{3}{4}$

$1 \times \frac{5}{6} = \frac{5}{6}$

$13 \times \frac{2}{7} = 3\frac{5}{7}$

$12 \times \frac{1}{2} = 6$

$10 \times \frac{3}{10} = 3$

$16 \times \frac{3}{7} = 6\frac{6}{7}$

$8 \times \frac{1}{3} = 2\frac{2}{3}$

$16 \times \frac{2}{3} = 10\frac{2}{3}$

$11 \times \frac{2}{3} = 7\frac{1}{3}$

$12 \times \frac{8}{9} = 10\frac{2}{3}$

$7 \times \frac{1}{7} = 1$

Real Life Math *(Page 94)*

The whole case of screws weighs 16 kilograms.

Multiply the following. *(Pages 96-97)*

$19 \times 4\frac{1}{2} = 85\frac{1}{2}$

$13 \times 4\frac{1}{2} = 58\frac{1}{2}$

$14 \times 10\frac{8}{9} = 152\frac{4}{9}$

$16 \times 3\frac{2}{3} = 58\frac{2}{3}$

$6 \times 9\frac{3}{10} = 55\frac{4}{5}$

$12 \times 8\frac{3}{5} = 103\frac{1}{5}$

$15 \times 4\frac{4}{5} = 72$

$14 \times 5\frac{1}{3} = 74\frac{2}{3}$

$8 \times 4\frac{6}{7} = 38\frac{6}{7}$

$4 \times 5\frac{1}{4} = 21$

$4 \times 5\frac{1}{2} = 22$

$9 \times 8\frac{3}{4} = 78\frac{3}{4}$

$10 \times 4\frac{9}{10} = 49$

$8 \times 3\frac{4}{5} = 30\frac{2}{5}$

$13 \times 2\frac{3}{4} = 35\frac{3}{4}$

$16 \times 10\frac{2}{5} = 166\frac{2}{5}$

$12 \times 5\frac{1}{9} = 61\frac{1}{3}$

$4 \times 2\frac{8}{9} = 11\frac{5}{9}$

$9 \times 9\frac{3}{4} = 87\frac{3}{4}$

$19 \times 9\frac{1}{2} = 180\frac{1}{2}$

$18 \times 1\frac{2}{5} = 25\frac{1}{5}$

$11 \times 3\frac{6}{7} = 42\frac{3}{7}$

$15 \times 10\frac{2}{9} = 153\frac{1}{3}$

$18 \times 4\frac{3}{8} = 78\frac{3}{4}$

Real Life Math *(Page 98)*

Jeff will need 33 $\frac{3}{4}$ litres of oil for the boating season.

Divide *(Pages 102-103)*

$\frac{5}{8} \div \frac{1}{2} = 1\frac{1}{4}$

$\frac{1}{2} \div \frac{5}{8} = \frac{4}{5}$

$\frac{1}{7} \div \frac{2}{3} = \frac{3}{14}$

$\frac{3}{7} \div \frac{7}{8} = \frac{24}{49}$

$\frac{3}{5} \div \frac{2}{3} = \frac{9}{10}$

$\frac{5}{6} \div \frac{1}{5} = 4\frac{1}{6}$

$\frac{7}{9} \div 2\frac{1}{2} = \frac{14}{45}$

$\frac{2}{7} \div 4 = \frac{1}{14}$

$1\frac{1}{5} \div \frac{1}{6} = 7\frac{1}{5}$

$1\frac{4}{5} \div \frac{1}{8} = 14\frac{2}{5}$

$3 \div \frac{6}{7} = 3\frac{1}{2}$

$\frac{1}{3} \div 2 = \frac{1}{6}$

$\frac{5}{9} \div 3 = \frac{5}{27}$

$\frac{7}{9} \div 7 = \frac{1}{9}$

$\frac{3}{4} \div \frac{1}{3} = 2\frac{1}{4}$

$\frac{4}{9} \div \frac{2}{3} = \frac{2}{3}$

$\frac{1}{10} \div 1\frac{1}{3} = \frac{3}{40}$

$\frac{1}{3} \div \frac{1}{2} = \frac{2}{3}$

$1\frac{1}{9} \div \frac{1}{5} = 5\frac{5}{9}$

$\frac{1}{4} \div \frac{1}{2} = \frac{1}{2}$

$\frac{1}{2} \div \frac{5}{8} = \frac{4}{5}$

$\frac{2}{5} \div \frac{2}{3} = \frac{3}{5}$

$\frac{2}{5} \div \frac{1}{5} = 2$

$1\frac{2}{3} \div 3 = \frac{5}{9}$

Real life Math *(Page 104)*

There are $\frac{3}{16}$ of a cup of flavouring in each bowl.

Change each fraction to a decimal. *(Page 107)*

$\frac{8}{10}$	0.8	$\frac{1}{10}$	0.1	$\frac{3}{10}$	0.3	$\frac{9}{10}$	0.9
$\frac{2}{10}$	0.2	$\frac{4}{10}$	0.4	$\frac{5}{10}$	0.5	$\frac{7}{10}$	0.7
$\frac{37}{100}$	0.37	$\frac{97}{100}$	0.97	$\frac{52}{100}$	0.52	$\frac{66}{100}$	0.66
$\frac{78}{100}$	0.78	$\frac{83}{100}$	0.83	$\frac{88}{100}$	0.88	$\frac{45}{100}$	0.45
$\frac{50}{100}$	0.5	$\frac{54}{100}$	0.54	$\frac{59}{100}$	0.59	$\frac{69}{100}$	0.69
$\frac{369}{1000}$	0.369	$\frac{856}{1000}$	0.856	$\frac{688}{1000}$	0.688	$\frac{897}{1000}$	0.897
$\frac{361}{1000}$	0.361	$\frac{172}{1000}$	0.172	$\frac{212}{1000}$	0.212	$\frac{494}{1000}$	0.494

Write a fraction for each of the following. *(Page 108)*

0.9	$\frac{9}{10}$	0.6	$\frac{3}{5}$	0.5	$\frac{1}{2}$	0.2	$\frac{1}{5}$
2.7	$\frac{27}{10}$	3.8	$\frac{19}{5}$	1.3	$\frac{13}{10}$	2.1	$\frac{21}{10}$
0.81	$\frac{81}{100}$	0.92	$\frac{23}{25}$	0.94	$\frac{47}{50}$	0.83	$\frac{83}{100}$
0.58	$\frac{29}{50}$	0.62	$\frac{31}{50}$	0.98	$\frac{49}{50}$	0.71	$\frac{71}{100}$
4.97	$\frac{497}{100}$	1.11	$\frac{111}{100}$	2.71	$\frac{271}{100}$	8.42	$\frac{421}{50}$
0.386	$\frac{193}{500}$	0.585	$\frac{117}{200}$	0.652	$\frac{163}{250}$	0.238	$\frac{119}{500}$
0.212	$\frac{53}{250}$	4.174	$\frac{2087}{500}$	3.492	$\frac{873}{250}$	2.184	$\frac{273}{125}$

Add the numbers. *(Pages 110 – 111)*

2.7 + 6.2 = 8.9	2.2 + 8.3 = 10.5	2.5 + 5.5 = 8	3.4 + 6.1 = 9.5
8.8 + 1.7 = 10.5	9.8 + 6.2 = 16	4.7 + 4.6 = 9.3	8.6 + 4.5 = 13.1
1.8 + 7.6 = 9.4	9.3 + 1.3 = 10.6	9.6 + 7 = 16.6	4.3 + 9 = 13.3
3.63 + 9.39 = 13.02	9.17 + 2.55 = 11.72	7.02 + 9.21 = 16.23	5.07 + 4.12 = 9.19
4.07 + 1.4 = 5.47	2.97 + 4.1 = 7.07	9.84 + 5.52 = 15.36	5.49 + 8.87 = 14.36
9.303 + 5.840 = 15.143	2.765 + 8.397 = 11.162	7.537 + 4.911 = 12.448	9.299 + 4.471 = 13.77
7.607 + 7.39 = 14.997	1.123 + 3.32 = 4.443	2.402 + 7.025 = 9.427	4.544 + 6.77 = 11.314
8.187 + 2.87 = 11.057	5.275 + 2.546 = 7.821	2.168 + 1.675 = 3.843	8.406 + 1.927 = 10.333

Real Life Math *(Page 112)*

The combined thickness of tin is 0.63 centimetres.

Subtract the numbers. *(Page 114)*

8.7 − 7.1 = 1.6	7.5 − 5.3 = 2.2	9.6 − 7 = 2.6	4.8 − 4.1 = 0.7
8.6 − 7 = 1.6	9.3 − 7.2 = 2.1	8.2 − 2.1 = 6.1	9.2 − 3.2 = 6
4.29 − 1.26 = 3.03	8.45 − 3.98 = 4.47	7.11 − 6.93 = 0.18	8.21 − 1.91 = 6.3
8.49 − 2.29 = 6.2	4.15 − 2.9 = 1.25	9.86 − 8.98 = 0.88	6.71 − 5.7 = 1.01
9.774 − 3.684 = 6.09	5.545 − 2.497 = 3.048	4.448 − 3.786 = 0.662	7.975 − 4.427 = 3.548
4.478 − 3.67 = 0.808	3.519 − 1.49 = 2.029	7.843 − 1.882 = 5.961	7.967 − 1.741 = 6.226

Real Life Math *(Page 115)*

The spark plug gap is too large by 1.24 millimetres.

Multiply the numbers. *(Page 117)*

6.59	5.29	3.11	53.3	19.5
x 1.41	x 10	x 99.4	x 4.31	x 80.1
7.5126	52.9	309.134	229.723	1561.95
6.76	1.27	1.80	70.2	86.9
x 4.06	x 13	x 3.1	x 8.78	x 39.3
27.4456	16.51	5.58	616.356	3415.17
5.11	5.36	6.32	41.7	71.1
x 5.86	x 795	x 78.6	x 7.62	x 8.80
29.9446	4261.2	496.752	317.754	625.68
6.43	1.23	3.92	91.3	20.2
x 4.03	x 62	x 3.6	x 1.64	x 2.2
25.9129	76.26	14.112	149.732	44.44
8.52	3.96	5.59	65.5	76.6
x 2.45	x 207	x 98.5	x 8.08	x 55.8
20.874	819.72	550.615	529.24	4274.28
2.27	4.73	2.75	370	69.5
x 730	x 45.6	x 59.6	x 1.44	x 99.5
1657.1	215.688	163.9	532.8	6915.25

Real Life Math *(Page 118)*

The wood to be processed will weigh 38.4 kilograms.

Divide the numbers. *(Page 120)*

5.54 ÷ 2 = 2.77	63.8 ÷ 2 = 31.9	0.843 ÷ 3 = 0.281
0.118 ÷ 2 = 0.059	78.5 ÷ 5 = 15.7	9.96 ÷ 3 = 3.32
5.14 ÷ 2 = 2.57	86.4 ÷ 3 = 28.8	0.415 ÷ 5 = 0.083
0.155 ÷ 5 = 0.031	15.3 ÷ 3 = 5.1	5.38 ÷ 2 = 2.69
1.83 ÷ 3 = 0.61	64.8 ÷ 4 = 16.2	0.644 ÷ 4 = 0.161
0.396 ÷ 6 = 0.066	55.8 ÷ 2 = 27.9	8.24 ÷ 2 = 4.12

Real Life Math *(Page 121)*

Each ball weighs 0.19 kilograms.

Divide the numbers. *(Pages 123 – 124)*

42 ÷ 0.7 = 60	40 ÷ 0.8 = 50	68 ÷ 0.4 = 170
77 ÷ 0.7 = 110	24 ÷ 0.6 = 40	86 ÷ 0.2 = 430
232 ÷ 0.04 = 5800	578 ÷ 0.02 = 28900	784 ÷ 0.04 = 19600
309 ÷ 0.03 = 10300	456 ÷ 0.04 = 11400	916 ÷ 0.04 = 22900
326 ÷ 0.02 = 16300	610 ÷ 0.05 = 12200	865 ÷ 0.05 = 17300
822 ÷ 0.002 = 411000	860 ÷ 0.005 = 172000	432 ÷ 0.004 = 108000
596 ÷ 0.002 = 298000	180 ÷ 0.009 = 20000	430 ÷ 0.005 = 86000
500 ÷ 0.005 = 100000	885 ÷ 0.003 = 295000	662 ÷ 0.002 = 331000

Real Life Math *(Page 125)*

Carol can fill 60 spray containers with this amount of pesticide.

Divide the numbers. *(Pages 127 – 128)*

7.5 ÷ 0.5 = 15	9.9 ÷ 0.3 = 33	1.2 ÷ 0.4 = 3
0.28 ÷ 0.7 = 0.4	0.54 ÷ 0.9 = 0.6	0.44 ÷ 0.4 = 1.1
78.8 ÷ 0.4 = 197	5.76 ÷ 0.3 = 19.2	0.939 ÷ 0.3 = 3.13
378.2 ÷ 0. 2 = 1891	94.64 ÷ 0.4 = 236.6	4.296 ÷ 0.3 = 14.32
5.5 ÷ 0.05 = 110	9.5 ÷ 0.05 = 190	1.2 ÷ 0.04 = 30
0.27 ÷ 0.09 = 3	0.77 ÷ 0.07 = 11	0.62 ÷ 0.02 = 31
31.4 ÷ 0.02 = 1570	1.42 ÷ 0.02 = 71	0.586 ÷ 0.02 = 29.3
695.4 ÷ 0.06 = 11590	55.28 ÷ 0.04 = 1382	9.322 ÷ 0.02 = 466.1
87.8 ÷ 0.002 = 43900	42.5 ÷ 0.005 = 8500	2.16 ÷ 0.003 = 720
1.42 ÷ 0.002 = 710	0.972 ÷ 0.009 = 108	0.875 ÷ 0.005 = 175
845.5 ÷ 0.005 = 169100	545.8 ÷ 0.002 = 272900	46.04 ÷ 0.004 = 11510
94.84 ÷ 0.004 = 23710	2.298 ÷ 0.006 = 383	0.9008 ÷ 0.002 = 450.4

Real Life Math *(Page 129)*

There are 310 bearings in each box.

Convert each percent to both fraction and decimal forms. *(Page 130)*

Percent	Fraction	Decimal
28%	$\frac{7}{25}$	0.28
12%	$\frac{3}{25}$	0.12
8%	$\frac{2}{25}$	0.08
31%	$\frac{31}{100}$	0.31
60%	$\frac{3}{5}$	0.6

Find the percentages *(Page 132)*

95% of 162 = 153.9

51% of 145 = 73.95

80% of 131 = 104.8

79% of 204 = 161.16

22% of 982 = 216.04

87% of 387 = 336.69

14% of 676 = 94.64

39% of 65.1 = 25.389

66% of 9.25 = 6.105

39% of 5.9 = 2.301

39% of 75 = 29.25

9% of 831 = 74.79

57% of 759 = 432.63

4% of 288 = 11.52

54% of 206 = 111.24

25% of 118 = 29.5

17% of 508 = 86.36

44% of 6.22 = 2.7368

35% of 98.7 = 34.545

67% of 6.8 = 4.556

Real Life Math *(Page 133)*

Sandra will earn $266 in commission that week.