



Solve problems with 4-digit dividends using factors and long division

Task A: Using factors to divide

1) Here are some possible ways to find the answer:



You could have divided
5,400 by 6 first.



You could then halve and
halve again.

$$5,400 \div 24 = 225$$

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$$5,400 \div 6 = 900$$

$$5,400 \div 3 = 1,800$$

$$5,400 \div 2 = 2,700$$

$$900 \div 2 = 450$$

$$1,800 \div 4 = 450$$

$$2,700 \div 3 = 900$$

$$450 \div 2 = 225$$

$$450 \div 2 = 225$$

$$900 \div 2 = 450$$

$$450 \div 2 = 225$$

$$6 \times 2 \times 2 = 24$$

$$3 \times 4 \times 2 = 24$$

$$2 \times 3 \times 2 \times 2 = 24$$

2) Here is one possible way to find the answer:



You could halve
8,760 first.



You could have divided
2,190 by 3
 $2,100 \div 3 = 700$
 $90 \div 3 = 30$

$$8,760 \div 24 = 365$$

$$8,760 \div 2 = 4,380$$

$$4,380 \div 2 = 2,190$$

$$2,190 \div 3 = 730$$

$$730 \div 2 = 365$$

$$2 \times 2 \times 3 \times 2 = 24$$



Task B: 4-digit number long division

1) Here is the answer:

There are 317 days in a year on Jacobus.



$$9,827 \div 31 = 317$$

		0	3	1	7	
3	1	9	8	2	7	
		9	3			(3 hundreds $\times$ 31 = 93 hundreds)
			5	2	7	
			3	1		(1 ten $\times$ 31 = 31 tens)
			2	1	7	
			2	1	7	(7 ones $\times$ 31 = 217 ones)
					0	

	$\times 31$
1	31
2	62
3	93
4	124
5	155
6	186
7	217
8	248
9	279
10	310

2) Here is the answer:

There are 211 days in a year on Alexis.



$$7,807 \div 37 = 211$$

		0	2	1	1	
3	7	7	8	0	7	
		7	4			(2 hundreds $\times$ 37 = 74 hundreds)
			4	0	7	
			3	7		(1 ten $\times$ 37 = 37 tens)
				3	7	
				3	7	(1 one $\times$ 37 = 37 ones)
					0	

	$\times 37$
1	37
2	74
3	111
4	148
5	185
6	222
7	259
8	296
9	333
10	370

1) Here are the multiples of 14:

	$\times 14$
1	14
2	28
3	42
4	56
5	70
6	84
7	98
8	112
9	126
10	140

1) Here are the answers:



$30 \times 14 = 420$
 $40 \times 14 = 560$



448 is closer to 420 than 560 so a good **estimate** is 32

a) $448 \div 14 = 32$

		0	3	2		
1	4	4	4	8		
		4	2			(3 tens $\times 14 =$ 42 tens)
			2	8		
			2	8		(2 ones $\times 14 =$ 28 ones)
				0		

b) $616 \div 14 = 44$

		0	4	4		
1	4	6	1	6		
		5	6			(4 tens $\times 14 =$ 56 tens)
			5	6		
			5	6		(4 ones $\times 14 =$ 56 ones)
				0		

c) $910 \div 14 = 65$

		0	6	5		
1	4	9	1	0		
		8	4			(6 tens $\times 14 =$ 84 tens)
			7	0		
			7	0		(5 ones $\times 14 =$ 70 ones)
				0		



3) Here is the answer:



There are 231 days in a year on Juncury.

$$9,933 \div 43 = 231$$

		0	2	3	1	
4	3	9	9	3	3	
		8	6			
		1	3	3	3	
		1	2	9		
				4	3	
				4	3	
					0	

(2 hundreds $\times$ 43 = 86 hundreds)

(3 tens $\times$ 43 = 129 tens)

(1 one $\times$ 43 = 43 ones)

	$\times 43$
1	43
2	86
3	129
4	172
5	215
6	258
7	301
8	344
9	387
10	430





Using short and long division to divide by a 2-digit divisor

Task A: Dividing by 12 using short division

Here are the answers:

a) $408 \div 12 = 34$

		0	3	4	
1	2	4	40	48	

$360 \div 12 = 30$
 $480 \div 12 = 40$
 For a) a reasonable
estimate is 35



b) $804 \div 12 = 67$

		0	6	7	
1	2	8	80	84	

$720 \div 12 = 60$
 $840 \div 12 = 70$
 For b) a reasonable
estimate is 65



c) $972 \div 12 = 81$

		0	8	1	
1	2	9	97	12	



Task B: Dividing by 12 using long division

Here are the answers:

You needed to start with the hundreds. 4 hundreds divided by 12 is equal to 0 hundreds.



You needed to subtract 30×12 then subtract 4×12



a) $408 \div 12 = 34$

		0	3	4		
1	2	4	0	8		
		3	6			(2 tens $\times 12 =$
			4	8		36 tens)
			4	8		(4 ones $\times 12 =$
				0		48 ones)

b) $804 \div 12 = 67$

		0	6	7		
1	2	8	0	4		
		7	2			(6 tens $\times 12 =$
			8	4		72 tens)
			8	4		(7 ones $\times 12 =$
				0		84 ones)

c) $972 \div 12 = 81$

		0	8	1		
1	2	9	7	2		
		9	6			(8 tens $\times 12 =$
			1	2		96 tens)
			1	2		(1 one $\times 12 =$
				0		12 ones)

