DIVIDE BY A DECIMAL

BUILDING BLOCKS

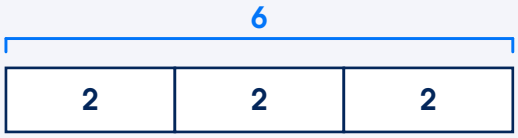
NAME _____ CLASS _____ DATE _____

KEY IDEA

6 ÷ 2 asks: how many 2s fit into 6?

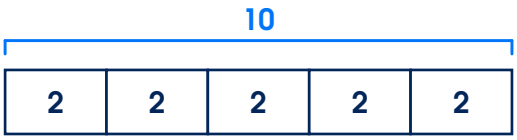
Count the equal parts.

6 ÷ 2 = 3



1 How many equal parts? Complete each division.

a)



10 ÷ 2 = ☐

b)



12 ÷ 3 = ☐

2 Each circle is 1 whole, split into halves. How many halves are there?

a)



1 ÷ 0.5 = ☐

b)



3 ÷ 0.5 = ☐

c)



5 ÷ 0.5 = ☐

3 Each bar is 1 whole, split into tenths. How many tenths are shaded?

a)



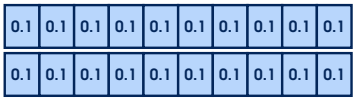
1 ÷ 0.1 = ☐

b)



0.6 ÷ 0.1 = ☐

c)



2 ÷ 0.1 = ☐

4 Money: £0.50 = 50p and £0.20 = 20p.

a) £1 £1 £1 **How many 50p coins make £3?** ☐

b) £1 £1 **How many 20p coins make £2?** ☐

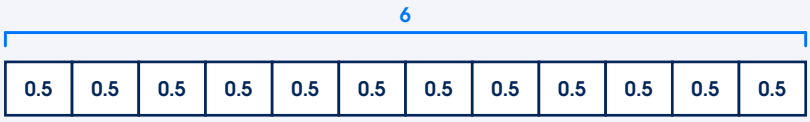
DIVIDE BY A DECIMAL

SUPPORT

NAME _____ CLASS _____ DATE _____

KEY IDEA

6 ÷ 0.5 asks: how many 0.5s fit into 6?

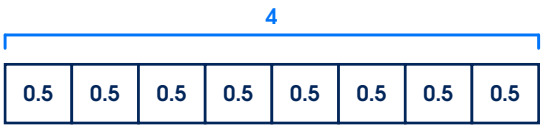


6 ÷ 0.5 = 12

Or multiply both numbers by 10: 6 ÷ 0.5 = 60 ÷ 5 = 12. The answer stays the same.

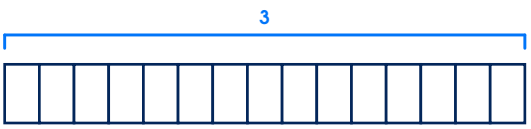
1 Use the bar models to complete each division.

a)



4 ÷ 0.5 = ☐

b)



each part is 0.2

3 ÷ 0.2 = ☐

2 Multiply both numbers by 10 to make the divisor a whole number. Complete.

a) **8 ÷ 0.4 = 80 ÷** ☐ **=** ☐

b) **2.7 ÷ 0.3 = 27 ÷** ☐ **=** ☐

c) **1.8 ÷ 0.6 =** ☐ **÷ 6 =** ☐

3 Jo says, "9 ÷ 0.5 = 4.5 because you halve it."

a) Explain Jo's mistake.

.....

b) What is 9 ÷ 0.5? ☐

4 Solve these problems.

a) A jug holds 3 litres. How many 0.25 litre glasses can it fill? ☐

b) How many 0.4 kg portions can be made from 2 kg of rice? ☐

DIVIDE BY A DECIMAL

CORE

NAME _____ CLASS _____ DATE _____

KEY IDEA

To divide by a decimal, multiply both numbers by the same power of 10 so the divisor becomes a whole number: $4.2 \div 0.6 = 42 \div 6 = 7$. The answer does not need adjusting. Dividing by a number between 0 and 1 gives an answer greater than the number you started with.

FLUENCY

1 Work out each division.

a) **11 ÷ 0.5** ☐

b) **4.2 ÷ 0.6** ☐

c) **9.6 ÷ 0.08** ☐

d) **16 ÷ 0.4** ☐

e) **3.24 ÷ 1.2** ☐

f) **0.56 ÷ 0.07** ☐

2 156 ÷ 12 = 13. Use this fact to work out each calculation.

a) **15.6 ÷ 1.2** ☐

b) **1.56 ÷ 0.12** ☐

c) **15.6 ÷ 12** ☐

d) **156 ÷ 1.2** ☐

REASONING

3 Without calculating, is 35 ÷ 0.7 greater than or less than 35? Explain how you know.

.....

.....

4 Ana writes 3.6 ÷ 0.4 as 36 ÷ 4 = 9, then says the answer is 0.9. Explain her mistake and give the correct answer.

.....

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DIVIDE BY A DECIMAL

GREATER DEPTH

NAME _____ CLASS _____ DATE _____

REASONING

1 Is each statement always, sometimes or never true? Circle your answer.

a is a positive number. Give an example to support each answer.

a) Dividing by a decimal gives a bigger answer. ALWAYS SOMETIMES NEVER

b) $a \div 0.5 = 2a$ ALWAYS SOMETIMES NEVER

c) $a \div 0.25$ is a whole number. ALWAYS SOMETIMES NEVER

PROBLEM SOLVING

2 A ribbon is 4.5 m long.

a) How many 0.15 m pieces can be cut from it? ☐

b) How many 0.4 m pieces can be cut instead? ☐ Left over: ☐ m

3 Work out each calculation. Then write the answers in order, smallest first.

24 ÷ 0.6	24 × 0.6	2.4 ÷ 6	24 ÷ 0.06	0.24 ÷ 0.06

smallest ☐ ☐ ☐ ☐ ☐ largest

★ CHALLENGE FOR ALL

4 Find each missing number.

a) 7.2 ÷ ☐ = 90 **b)** ☐ ÷ 0.3 = 0.8 **c)** 0.45 ÷ ☐ = 1.5

d) Explain why $4.8 \div 0.25$ gives the same answer as 4.8×4.

DIVIDE BY A DECIMAL

ANSWERS

BUILDING BLOCKS

1 a) 5 · b) 4
2 a) 2 · b) 6 · c) 10
3 a) 10 · b) 6 · c) 20
4 a) 6 · b) 10

SUPPORT

1 a) 8 · b) 15
2 a) 4, 20 · b) 3, 9 · c) 18, 3
3 a) Dividing by 0.5 means finding how many halves are in 9, not halving 9. b) 18
4 a) 12 glasses · b) 5 portions

CORE

1 a) 22 · b) 7 · c) 120 · d) 40 · e) 2.7 · f) 8
2 a) 13 · b) 13 · c) 1.3 · d) 130
3 Greater: 0.7 is less than 1, so more than 35 groups of 0.7 fit into 35 (35 ÷ 0.7 = 50).
4 Multiplying both numbers by 10 does not change the answer, so no adjustment is needed. 3.6 ÷ 0.4 = 9

GREATER DEPTH

1 a) Sometimes (6 ÷ 0.5 = 12, but 6 ÷ 1.5 = 4) · b) Always · c) Sometimes (2 ÷ 0.25 = 8, but 0.1 ÷ 0.25 = 0.4)
2 a) 30 pieces · b) 11 pieces, 0.1 m left over
3 Values 40, 14.4, 0.4, 400, 4. Order: 0.4, 4, 14.4, 40, 400
4 a) 0.08 · b) 0.24 · c) 0.3 · d) There are 4 quarters in 1, so dividing by 0.25 counts 4 for every 1: 4.8 ÷ 0.25 = 4.8 × 4 = 19.2