MULTIPLY BY 0.1 AND 0.01

BUILDING BLOCKS

NAME _____ CLASS _____ DATE _____

KEY IDEA

0.1 is one tenth.

$0.1 = \frac{1}{10}$

To find one tenth of a number, divide it by 10.



One tenth of 30 is 3

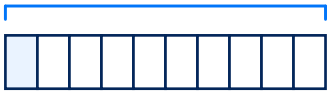
1 Each bar is split into 10 equal parts. Find one tenth of each number.

a) 

40 ÷ 10 = ☐

b) 

70 ÷ 10 = ☐

c) 

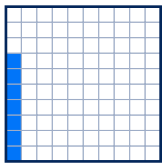
120 ÷ 10 = ☐

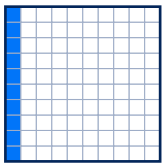
2 Write the shaded part of each whole as a decimal.

Hint for b) and c): a hundred square is 1 whole. Each small square is 0.01.

a) 

3 tenths = ☐

b)  = ☐

c)  = ☐

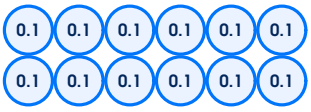
3 Count the counters. Complete each multiplication.

a) 

6 × 0.1 = ☐

b) 

5 × 0.01 = ☐

c) 

12 × 0.1 = ☐

4 The number line shows 4 jumps of 0.1. Use it to help you.



a) 4 × 0.1 = ☐

b) 9 × 0.1 = ☐

c) 10 × 0.1 = ☐

MULTIPLY BY 0.1 AND 0.01

SUPPORT

NAME _____ CLASS _____ DATE _____

KEY IDEA

× 0.1 is the same as ÷ 10

× 0.01 is the same as ÷ 100

52 × 0.1 = 52 ÷ 10 = 5.2

Multiplying by 0.1 makes a positive number smaller.

T	O	t
5	2	.
5	.	2

× 0.1

1 Complete each pair of equal calculations.

a) **24 × 0.1 = 24 ÷** ☐ **=** ☐

b) **9 × 0.1 = 9 ÷** ☐ **=** ☐

c) **350 × 0.01 = 350 ÷** ☐ **=** ☐

2 Write the new digits in each blank row. Then write the answers.

T	O	t	h
4	6	.	
☐	☐	.	☐ ☐

× 0.1

T	O	t	h
4	6	.	
☐	☐	.	☐ ☐

× 0.01

a) 46 × 0.1 = ☐

b) 46 × 0.01 = ☐

3 Draw lines to match each calculation to its answer.

80 × 0.1	0.08
80 × 0.01	80
8 × 0.01	8
800 × 0.1	0.8

4 Tom says, "5 × 0.1 = 5.1"

a) Explain Tom's mistake.

b) What is 5 × 0.1? ☐

MULTIPLY BY 0.1 AND 0.01

CORE

NAME _____ CLASS _____ DATE _____

KEY IDEA

- **0.1 = $\frac{1}{10}$, so × 0.1 is the same as ÷ 10**
- **0.01 = $\frac{1}{100}$, so × 0.01 is the same as ÷ 100**
- Multiplying a positive number by 0.1 or 0.01 makes it smaller.
- Multiples of 0.1 can be split up: 14 × 0.3 = 14 × 3 × 0.1 = 42 × 0.1 = 4.2

FLUENCY

1 Work out each calculation.

a) **67 × 0.1** ☐

b) **7.4 × 0.1** ☐

c) **285 × 0.01** ☐

d) **9 × 0.01** ☐

e) **0.6 × 0.1** ☐

f) **40.5 × 0.01** ☐

2 Find each missing number.

a) ☐ **× 0.1 = 2.7**

b) **450 ×** ☐ **= 4.5**

c) **0.3 ×** ☐ **= 0.03**

d) ☐ **× 0.01 = 1.2**

REASONING

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

73 × 0.1 **703 ÷ 100** **7.3 × 0.01** **0.37 × 10** **37 × 0.01**

smallest ☐ ☐ ☐ ☐ ☐ largest

4 Explain why 32 × 0.4 = 128 × 0.1. Then work out 32 × 0.4.

MULTIPLY BY 0.1 AND 0.01

GREATER DEPTH

NAME _____ CLASS _____ DATE _____

REASONING

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

Give an example to support each answer.

a) × 0.1 makes a number smaller. ALWAYS SOMETIMES NEVER

b) n × 0.01 = n ÷ 100 ALWAYS SOMETIMES NEVER

c) × 0.1 twice is the same as × 0.01. ALWAYS SOMETIMES NEVER

PROBLEM SOLVING

2 Answer each money question.

a) 1p = £0.01. What is 345 × 1p in pounds? ☐

b) A shop takes 0.1 of the price off a £64 coat.

Amount taken off: ☐ New price: ☐

3 Find the missing numbers.

a) **2.5 × 0.1 × ☐ = 0.0025**

b) ☐ **× 0.1 = 0.6** ☐ **× 0.01 = 0.6**

★ CHALLENGE FOR ALL

4 Get from 5 to 0.005 in exactly three steps. Each step must be × 0.1, × 0.01, × 10 or × 100. Find as many different ways as you can.

5	→ ☐	→ ☐	→ ☐	→ 0.005
5	→ ☐	→ ☐	→ ☐	→ 0.005
5	→ ☐	→ ☐	→ ☐	→ 0.005
5	→ ☐	→ ☐	→ ☐	→ 0.005

MULTIPLY BY 0.1 AND 0.01

ANSWERS

BUILDING BLOCKS

1 a) 4 · b) 7 · c) 12
2 a) 0.3 · b) 0.07 · c) 0.1 (10 hundredths = 1 tenth)
3 a) 0.6 · b) 0.05 · c) 1.2
4 a) 0.4 · b) 0.9 · c) 1

SUPPORT

1 a) 10, 2.4 · b) 10, 0.9 · c) 100, 3.5
2 a) 4.6 · b) 0.46
3 80 × 0.1 = 8 · 80 × 0.01 = 0.8 · 8 × 0.01 = 0.08 · 800 × 0.1 = 80
4 a) He has joined the numbers together. 5 × 0.1 means 5 lots of one tenth (5 ÷ 10). b) 0.5

CORE

1 a) 6.7 · b) 0.74 · c) 2.85 · d) 0.09 · e) 0.06 · f) 0.405
2 a) 27 · b) 0.01 · c) 0.1 · d) 120
3 Values 7.3, 7.03, 0.073, 3.7, 0.37. Order: 0.073, 0.37, 3.7, 7.03, 7.3
4 0.4 = 4 × 0.1, so 32 × 0.4 = 32 × 4 × 0.1 = 128 × 0.1 = 12.8

GREATER DEPTH

1 a) Sometimes (true for positive numbers; 0 × 0.1 = 0, and –5 × 0.1 = –0.5 is greater) · b) Always · c) Always
2 a) £3.45 · b) £6.40 off; new price £57.60
3 a) 0.01 · b) 6 and 60
4 Four ways: × 0.1, × 0.1, × 0.1; and × 0.01, × 0.01, × 10 in any order (3 orders)