Formal methods: multiply decimals

1 Tommy is working out 2.4 × 3

Tens	Ones	Tenths
	①① ①① ①①	0.1 0.1 0.1 0.1 / 0.1 0.1 0.1 0.1 / 0.1 0.1 0.1 0.1

a) Use Tommy's method to work out the answer.

$7 \cdot 2$

b) Use a place value chart and counters to work out these calculations.

14.2 × 4 = $56 \cdot 8$ 3.21 × 5 = $16 \cdot 05$ 5.73 × 2 = $11 \cdot 46$

2 **a)** Work out 38 × 7

266

b) Use your answer to work out these calculations.

3.8 × 7 = $26 \cdot 6$ 3.8 × 0.7 = $2 \cdot 66$

3.8 × 70 = 266 3.8 × 0.07 = $0 \cdot 266$

380 × 0.07 = $26 \cdot 6$ 0.38 × 7 = $2 \cdot 66$

c) Compare answers with a partner. Discuss the method that you used.

3 Amir is working out 1.7 × 28

First, he works out 17 × 28

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          1   7
    ×     2   8
    ---------------
      1   3   6
      3   4   0
    ---------------
      4   7   6
```
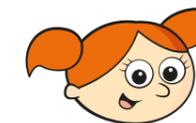
How can Amir use this working to calculate 1.7 × 28?

Divide his answer by 10
$1 \cdot 7 \times 28 = 47 \cdot 6$

Explain your reasoning.

4 Alex is working out 0.2 × 0.4 in her head.

> I know that 2 × 4 = 8. I multiplied each number in the question by 10, so I'll divide 8 by 10. The answer is 0.8

a) Is Alex correct? ___No___

Explain your answer.

b) Work out these calculations in your head.

0.3 × 2 = $\boxed{0.6}$ 0.3 × 3 = $\boxed{0.9}$

0.3 × 0.2 = $\boxed{0.06}$ 0.3 × 0.3 = $\boxed{0.09}$

0.3 × 5 = $\boxed{1.5}$ 0.3 × 0.5 = $\boxed{0.15}$

0.3 × 0.6 = $\boxed{0.18}$ 0.6 × 0.03 = $\boxed{0.018}$

5 Estimate the answers by rounding to one significant figure.

Then work out the calculations.

a) 2.1 × 39

estimate $\boxed{80}$

answer $\boxed{81.9}$

c) 8.3 × 0.42

estimate $\boxed{3.2}$

answer $\boxed{3.486}$

b) 5.7 × 0.6

estimate $\boxed{3.6}$

answer $\boxed{3.42}$

d) 4.09 × 8.7

estimate $\boxed{36}$

answer $\boxed{35.583}$

6

$\boxed{723 \times 84 = 60{,}732}$

Use this information to fill in the missing numbers.

72.3 × $\boxed{8.4}$ = 607.32 $\boxed{723}$ × 0.84 = 607.32

$\boxed{84{,}000}$ × 7.23 = 607,320   6.0732 = $\boxed{0.723}$ × 8.4

7 Mr Johns needs four different lengths of pipe.

2.8 m   4.1 m   1.6 m   0.4 m

The pipe costs £1.34 per metre.

Work out the total cost of the pipes Mr Johns needs to buy.

Round your answer to the nearest penny.

$\boxed{£11.93}$

8 The 1st term in a sequence is 3

The term-to-term rule is $\boxed{\times \ 3.2 \ \text{then} \ + \ 1}$

Find the next two terms in the sequence.

2nd term = $\boxed{10.6}$ 3rd term = $\boxed{34.92}$