

## Foundation Check In - 2.02 Decimal fractions

**Do not use a calculator.**

Work out the following, showing all your working.

- $2.4 + 1.07 - 3.5$
- $1.8 + 6 \times ^{-}1.8$
- $\frac{1}{5} + 0.15$   
Give your answer as a decimal.
- $6.2 \div 0.02$
- Express 0.044 as a fraction in its simplest form.
- Show that  $\frac{5}{12} = 0.41666\dots$
- Chris bought 5 pens and paid £2.  
He worked out the cost of a pen as  $2 \div 5$  and gave the answer as 0.4p each.  
Explain what is wrong with his answer.
- On each of 5 days, the midnight temperatures in a town were  $-1.3^{\circ}\text{C}$ ,  $2^{\circ}\text{C}$ ,  $-2.5^{\circ}\text{C}$ ,  $0.8^{\circ}\text{C}$  and  $1.4^{\circ}\text{C}$ . Show that the average temperature is  $0.08^{\circ}\text{C}$ .
- Jenna buys 3 pens and 2 erasers. She pays with a £5 note and receives 25p change.  
Each pen cost 2.5 times as much as an eraser.  
Find the cost of a pen and the cost of an eraser.
- Find the area of the triangle with the vertices plotted on a one centimetre coordinate grid at  $(-1.2, 0)$ ,  $(3.1, 0)$  and  $(2.4, 1.4)$ .

### Extension (You are allowed to use a calculator)

Use each of the digits 0, 2, and 5 **once only** and no other digits to write two numbers  $A$  and  $B$  where both  $A$  and  $B$  are greater than 0. For example  $A = [0].05$  and  $B = 2$ .  
(NB: The zero to the left of the decimal point does not count.)

The answer to  $A \div B$  must be as small as possible.

Find  $A$  and  $B$  and show that this gives the smallest possible answer.

Explain the method you used to answer this problem and then apply this method to some other digits.



# GCSE (9-1) MATHEMATICS

## Answers

1. -0.03

2. -9

3. 0.35

4. 310

5.  $\frac{11}{250}$

6.  $12 \overline{)5.50208080} \begin{matrix} 0.4166... \\ \end{matrix}$

7. The answer is £0.40 or 40p. Chris has stated the units incorrectly.

8.  $\frac{-1.3 + 2 + -2.5 + 0.8 + 1.4}{5} = \frac{0.4}{5} = 0.08 \text{ } ^\circ\text{C}$

9. Eraser 50p, pen £1.25

10.  $\frac{1}{2} \times (3.1 - 1.2) \times 1.4 = 3.01 \text{ cm}^2$

## Extension

$$[0].2 \div 50 = 0.004$$

$$[0].2 \div 5.0 = 0.04$$

$$2 \div 5.0 = 0.4$$

$$[0].2 \div [0].05 = 4$$

$$[0].05 \div 2 = 0.025$$

So  $A = [0].2$  and  $B = 50$  gives the smallest answer to  $A \div B$

**Method:** Make the first number as small as possible and the second number as large as possible. With 4, 5 and 7 the numbers would be  $[0].4 \div 75 = 0.0053...$

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Assessment Objective	Qu.	Topic	R	A	G
AO1	1	Add and subtract decimals			
AO1	2	Use order of operations when calculating with decimals, including negative decimals			
AO1	3	Add a fraction to a decimal			
AO1	4	Divide a decimal by a decimal			
AO1	5	Express a terminating decimal as a fraction			
AO2	6	Use division to convert a simple fraction to a decimal			
AO2	7	Use place value when calculating with monetary decimal values			
AO2	8	Calculate the mean using decimal data values			
AO3	9	Solve a contextual problem involving decimals			
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