# Foundation Check In - 2.02 Decimal fractions

**Do not use a calculator.**

Work out the following, showing all your working.

1. 
2. 
3. 

Give your answer as a decimal.

1. 
2. Express 0.044 as a fraction in its simplest form.
3. Show that .
4. Chris bought 5 pens and paid £2.

He worked out the cost of a pen as  and gave the answer as 0.4p each.

Explain what is wrong with his answer.

1. On each of 5 days, the midnight temperatures in a town were -1.3°C, 2°C, -2.5°C, 0.8°C and 1.4°C. Show that the average temperature is 0.08°C.
2. 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.

1. 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  and .

(NB: The zero to the left of the decimal point does not count.)

The answer to  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.

## Answers

1. -0.03
2. -9
3. 0.35
4. 310
5. 
6. 
7. The answer is £0.40 or 40p. Chris has stated the units incorrectly.
8. ˚C
9. Eraser 50p, pen £1.25
10. cm2

**Extension**











So  and  gives the smallest answer to 

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 

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| **Assessment Objective** | **Qu.** | **Topic** | **R** | **A** | **G** |  | **Assessment Objective** | **Qu.** | **Topic** | **R** | **A** | **G** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| AO1 | 1 | Add and subtract decimals |  |  |  |  | AO1 | 1 | Add and subtract decimals |  |  |  |
| AO1 | 2 | Use order of operations when calculating with decimals, including negative decimals |  |  |  |  | AO1 | 2 | Use order of operations when calculating with decimals, including negative decimals |  |  |  |
| AO1 | 3 | Add a fraction to a decimal |  |  |  |  | AO1 | 3 | Add fractions to decimals |  |  |  |
| AO1 | 4 | Divide a decimal by a decimal |  |  |  |  | AO1 | 4 | Divide a decimal by a decimal |  |  |  |
| AO1 | 5 | Express a terminating decimal as a fraction |  |  |  |  | AO1 | 5 | Express a terminating decimal as a fraction |  |  |  |
| AO2 | 6 | Use division to convert a simple fraction to a decimal |  |  |  |  | AO2 | 6 | Use division to convert a simple fraction to a decimal |  |  |  |
| AO2 | 7 | Use place value when calculating with monetary decimal values |  |  |  |  | AO2 | 7 | Use place value when calculating with monetary decimal values |  |  |  |
| AO2 | 8 | Calculate the mean using decimal data values |  |  |  |  | AO2 | 8 | Calculate the mean with decimal data values |  |  |  |
| AO3 | 9 | Solve a contextual problem involving decimals |  |  |  |  | AO3 | 9 | Solve a contextual problem involving decimals |  |  |  |
| AO3 | 10 | Solve a geometric problem involving decimals |  |  |  |  | AO3 | 10 | Solve a geometric problem involving decimals |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
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| AO2 | 6 | Use division to convert a simple fraction to a decimal |  |  |  |  | AO2 | 6 | Use division to convert a simple fraction to a decimal |  |  |  |
| AO2 | 7 | Use place value when calculating with monetary decimal values |  |  |  |  | AO2 | 7 | Use place value when calculating with monetary decimal values |  |  |  |
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| AO3 | 9 | Solve a contextual problem involving decimals |  |  |  |  | AO3 | 9 | Solve a contextual problem involving decimals |  |  |  |
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