# Higher Check In - 2.02 Decimal fractions

**Do not use a calculator.**

1. Express 1.04 as a fraction in its lowest terms.
2. Calculate .
3. Convert  to a recurring decimal.
4. A school canteen plans to make 8 trifles which each require 0.45 litres of cream. Cream is bought in 0.275 litre cartons. How many cartons of cream are required?
5. Express the recurring decimal fraction  as a fraction in its lowest terms.
6. Given that , write down . Explain your reasoning.
7. Oliver thinks that 0.12 is greater than 0.8 because 12 is greater than 8. Explain why he is wrong.
8. Use fractions to explain why dividing by 0.1 is equivalent to multiplying by 10.
9. The exchange rate from pounds to euros is . The exchange rate from euros to US dollars is . What is the equivalent exchange rate from pounds to US dollars?
10. Christine is thinking about whether to rent a petrol car or a diesel car for a day trip. She is planning to make a 250 km journey. Using the rental car data below, state which car she should rent and how much she would save.

|  | Fuel consumption  (litres per 100 km) | Fuel cost  (£ per litre) |
| --- | --- | --- |
| Petrol | 4.2 | 0.999 |
| Diesel | 3.7 | 1.009 |

**Extension**

Investigate the equivalent fractions of the recurring decimals , , … .

What is the equivalent fraction of ?

## Answers

1. 
2.  or 0.5
3. 
4.  which gives  so 14 cartons required.
5. 
6. 
7. 0.12 is , whereas 0.8 is , so .
8. , and dividing by  is the same as multiplying by .
9. 
10. Diesel car, saving £1.16

**Extension**

, , …

So 

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| **Assessment Objective** | **Qu.** | **Topic** | **R** | **A** | **G** |  | **Assessment Objective** | **Qu.** | **Topic** | **R** | **A** | **G** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| AO1 | 1 | Express a terminating decimal as a fraction |  |  |  |  | AO1 | 1 | Express a terminating decimal as a fraction |  |  |  |
| AO1 | 2 | Carry out a calculation involving recurring decimals |  |  |  |  | AO1 | 2 | Carry out a calculation involving recurring decimals |  |  |  |
| AO1 | 3 | Convert a mixed number to a recurring decimal |  |  |  |  | AO1 | 3 | Convert a mixed number to a recurring decimal |  |  |  |
| AO1 | 4 | Multiply and divide by decimals |  |  |  |  | AO1 | 4 | Multiply and divide by decimals |  |  |  |
| AO1 | 5 | Convert a recurring decimal to an exact fraction |  |  |  |  | AO1 | 5 | Convert a recurring decimal to an exact fraction |  |  |  |
| AO2 | 6 | Multiply decimals without a calculator using place value |  |  |  |  | AO2 | 6 | Multiply decimals without a calculator using place value |  |  |  |
| AO2 | 7 | Use equivalence between decimals and fractions |  |  |  |  | AO2 | 7 | Use equivalence between decimals and fractions |  |  |  |
| AO2 | 8 | Use equivalence between decimals and fractions to explain the method for dividing by 0.1 |  |  |  |  | AO2 | 8 | Use equivalence between decimals and fractions to explain the method for dividing by 0.1 |  |  |  |
| AO3 | 9 | Divide decimals without a calculator to work out exchange rates |  |  |  |  | AO3 | 9 | Divide decimals without a calculator to work out exchange rates |  |  |  |
| AO3 | 10 | Solve a contextual problem involving decimals |  |  |  |  | AO3 | 10 | Solve a contextual problem involving decimals |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
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