# Higher Check In – 2.01 Fractions

1. Work out .
2. Work out .
3. Work out .
4. Work out .
5. Work out possible integer values for *a*, *b* and *c*.



1. Explain why .
2. Joel works out the answer to  in his head. His answer of  is incorrect. Explain the mistake that Joel has made.
3. An extract from a science journal states “To work out how much 500 ml of liquid water at room temperature increases to after freezing: cm3.”

Use this information to show that 800 cm3 of ice will melt to produce 733.6 ml of liquid water at room temperature.

1. Complete the magic square so that the fractions in each row, each column and each of the two diagonals add up to the same value. Give each fraction in its simplest form.

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1. Sandra and Gill share a box of sweets in the ratio 3 : 2. Jonny takes half of Sandra’s sweets and a quarter of Gill’s sweets. What fraction of the original box of sweets does Jonny have?

Extension

Arrange the digits 1 to 9, using each one only once, to form a fraction equivalent to .

## Answers

1. 10
2. 
3. 
4. 
5. Any Pythagorean triple in the correct order e.g. ,  and .
6. Dividing by  is the same as multiplying by .
7. .

The error has been made when multiplying the  by  to give **– 2**.

1. ml to 1dp.

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1. 

Extension

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| **Assessment Objective** | **Qu.** | **Topic** | **R** | **A** | **G** |  | **Assessment Objective** | **Qu.** | **Topic** | **R** | **A** | **G** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| AO1 | 1 | Multiply mixed numbers |  |  |  |  | AO1 | 1 | Multiply mixed numbers |  |  |  |
| AO1 | 2 | Subtract simple fractions |  |  |  |  | AO1 | 2 | Subtract simple fractions |  |  |  |
| AO1 | 3 | Calculate with mixed numbers using the correct order of operations |  |  |  |  | AO1 | 3 | Calculate with mixed numbers using the correct order of operations |  |  |  |
| AO1 | 4 | Add and subtract fractions in more complex calculations, including algebraic fractions |  |  |  |  | AO1 | 4 | Add and subtract fractions in more complex calculations, including algebraic fractions |  |  |  |
| AO1 | 5 | Recognise equivalence between simple fractions and mixed numbers |  |  |  |  | AO1 | 5 | Recognise equivalence between simple fractions and mixed numbers |  |  |  |
| AO2 | 6 | Explain the method for dividing fractions correctly |  |  |  |  | AO2 | 6 | Explain the method for dividing fractions correctly |  |  |  |
| AO2 | 7 | Subtract algebraic fractions involving quadratic terms |  |  |  |  | AO2 | 7 | Subtract algebraic fractions involving quadratic terms |  |  |  |
| AO2 | 8 | Calculate a fraction of a quantity with fractions greater than 1 |  |  |  |  | AO2 | 8 | Calculate a fraction of a quantity with fractions greater than 1 |  |  |  |
| AO3 | 9 | Solve a fractional magic square |  |  |  |  | AO3 | 9 | Solve a fractional magic square |  |  |  |
| AO3 | 10 | Solve a contextual problem involving a ratio of quantities and fractions of quantities |  |  |  |  | AO3 | 10 | Solve a contextual problem involving a ratio of quantities and fractions of quantities |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
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| AO1 | 5 | Recognise equivalence between simple fractions and mixed numbers |  |  |  |  | AO1 | 5 | Recognise equivalence between simple fractions and mixed numbers |  |  |  |
| AO2 | 6 | Explain the method for dividing fractions correctly |  |  |  |  | AO2 | 6 | Explain the method for dividing fractions correctly |  |  |  |
| AO2 | 7 | Subtract algebraic fractions involving quadratic terms |  |  |  |  | AO2 | 7 | Subtract algebraic fractions involving quadratic terms |  |  |  |
| AO2 | 8 | Calculate a fraction of a quantity with fractions greater than 1 |  |  |  |  | AO2 | 8 | Calculate a fraction of a quantity with fractions greater than 1 |  |  |  |
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