# Fractions (H)

A collection of 9-1 Maths GCSE Sample and Specimen questions from AQA, OCR, Pearson-Edexcel and WJEC Eduqas.

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|---|---|
| Total Marks: | |

1. 1. Work out $1\frac{3}{4} \times 1\frac{5}{7}$

Give your answer as a mixed number in its simplest form.

$\frac{7}{4} \times \frac{12}{7} = \frac{12}{4} = 3$

[3]

2. A unit fraction has a numerator equal to 1 for example $\frac{1}{3}, \frac{1}{7}$, and $\frac{1}{25}$.

Unit fractions can be written as the sum of two different unit fractions, for example

$\frac{1}{2} = \frac{1}{3} + \frac{1}{6}$

Write each of the following unit fractions as the sum of two different unit fractions.

$\frac{1}{4} = \frac{1}{5} + \frac{1}{20}$ $\quad \frac{1}{5} + \frac{1}{20}$ ×4 $\frac{4}{20} + \frac{1}{20} = \frac{5}{20} = \frac{1}{4}$

$\frac{1}{5} = \frac{1}{6} + \frac{1}{30}$ $\quad \frac{1}{6} + \frac{1}{30}$ ×5 $\frac{5}{30} + \frac{1}{30} = \frac{6}{30} = \frac{1}{5}$

$\frac{1}{6} = \frac{1}{10} + \frac{1}{15}$ $\quad \frac{1}{10} + \frac{1}{15}$ ×2, ×3 $\frac{3}{30} + \frac{2}{30} = \frac{5}{30} = \frac{1}{6}$

[3]

3. A bakery bakes small, medium and large pies.

The ratio small : medium : large is 3 : 5 : 2. = 10

What fraction of the pies are large?

$\frac{2}{10}$ ..... [1]

4. Calculate.

$$2\frac{3}{8} \div 1\frac{1}{18}$$

LOOK!!

Give your answer as a mixed number in its lowest terms.

$\frac{19}{8} \div \frac{19}{18} = \frac{19}{8} \times \frac{18}{19}$

$= \frac{18}{8} = \frac{9}{4}$

$2\frac{1}{4}$ ..... [3]

5. One sheet of A3 card has area 1/8 $m^2$

The card has a mass of 160 g per $m^2$

Work out the total mass of 25 sheets of A3 card

one sheet = $\frac{1}{8}$ $m^2$ & area

mass of one sheet = $160 \times \frac{1}{8} = 20g$

25 sheets

$25 \times 20$

$= 500g$

[4]

6. a) Work out $2\frac{1}{4} \times 3\frac{1}{3}$ $\frac{\cancel{9}^{3}}{\cancel{4}_{2}} \times \frac{\cancel{15}^{5}}{\cancel{3}_{1}} = \frac{15}{2} = 7\frac{1}{2}$

Give your answer as a mixed number in its simplest form.

b) Write the numbers 3, 4, 5 and 6 in the boxes to give the greatest possible total.

You may write each number only once.

3, 4

$\frac{1}{3} + \frac{2}{4}$ $\frac{4}{12} + \frac{6}{12} = \frac{10}{12}$

OR $\frac{1}{4} + \frac{2}{3}$ $\frac{3}{12} + \frac{8}{12} = \frac{11}{12}$

$$\boxed{6}\frac{1}{\boxed{4}} + \boxed{5}\frac{2}{\boxed{3}}$$

[1]

7. Circle the fraction equivalent to 2.375

$\frac{23}{75}$ $\frac{9}{4}$ $\frac{19}{8}$ $\frac{75}{23}$

[1]

8. Which of $\frac{2}{5}$ or $\frac{5}{8}$ is closer in value to $\frac{1}{2}$ ?

You must show your working.

$\frac{2}{5} = \frac{16}{40}$ (×8) $\quad \frac{5}{8} = \frac{25}{40}$ (×5) $\quad \frac{1}{2} = \frac{20}{40}$

$\frac{16}{40}$ ← $\frac{4}{20}$ $\quad \frac{20}{40}$ → $\frac{5}{40}$ $\quad \frac{25}{40}$

$\frac{2}{5}$ is closer

[3]

9. What is 0.12 as a fraction of 0.8? Circle your answer.

[1]

$\frac{0.12 \times 100}{0.80 \times 100}$

$\frac{12}{80} = \frac{3}{20}$

$\frac{3}{20}$ $\frac{2}{3}$ $\frac{20}{3}$ $\frac{3}{2}$

10. A motor racing circuit has length $5\frac{5}{6}$ $\frac{35}{6}$

A straight section of the circuit has length $1\frac{3}{4}$ miles. $\frac{7}{4}$

What fraction of the circuit is the straight section?

Give your answer in its simplest form.

$\frac{7}{4} \div \frac{35}{6}$ $\quad \frac{\cancel{7}^{1}}{\cancel{4}_{2}} \times \frac{\cancel{6}^{3}}{\cancel{35}_{5}} = \frac{3}{10}$

[3]

11. Express $0.1\dot{5}$ as a fraction in its simplest form.

$x = 0.15555\ldots$

$10x = 1.55555$

$x = 0.15555$

$9x = 1.4$

$x = \frac{1.4}{9} = \frac{14}{90} = \frac{7}{45}$

[3]

12. Here are two piles of the same type of paper.

Each sheet of paper is $\frac{7}{1000}$ cm thick.

The taller pile is $10\frac{1}{2}$ cm high.

height of taller pile : height of shorter pile = 3 : 2

Work out the number of sheets of paper in the shorter pile.

$\frac{21}{2} \div \frac{7}{1000} = \frac{3}{\cancel{21}_{1}} \times \frac{\cancel{1000}^{500}}{\cancel{7}_{1}} = 1500$

[3]

1500 : ?
3 : 2

1500 ÷ 3 = 500
500 × 2 = 1000

1000 sheets in the shorter pile.

# CREDITS AND NOTES

| Q | Awarding Body | Q | Awarding Body |
|---|---|---|---|
| 1 | AQA | 10 | AQA |
| 2 | OCR | 11 | AQA |
| 3 | OCR | 12 | AQA |
| 4 | OCR | | |
| 5 | Pearson Edexcel | | |
| 6 | Pearson Edexcel | | |
| 7 | AQA | | |
| 8 | AQA | | |
| 9 | AQA | | |

**Notes:**

These questions have been retyped from the original sample/specimen assessment materials and whilst every effort has been made to ensure there are no errors, any that do appear are mine and not the exam board s (similarly any errors I have corrected from the originals are also my corrections and not theirs!).

Please also note that the layout in terms of fonts, answer lines and space given to each question does not reflect the actual papers to save space.

These questions have been collated by me as the basis for a GCSE working party set up by the GLOW maths hub - if you want to get involved please get in touch. The objective is to provide support to fellow teachers and to give you a flavour of how different topics "could" be examined. They should not be used to form a decision as to which board to use. There is no guarantee that a topic will or won't appear in the "live" papers from a specific exam board or that examination of a topic will be as shown in these questions.

**Links:**

AQA http://www.aqa.org.uk/subjects/mathematics/gcse/mathematics-8300

OCR http://ocr.org.uk/gcsemaths

Pearson Edexcel http://qualifications.pearson.com/en/qualifications/edexcel-gcses/mathematics-2015.html

WJEC Eduqas http://www.eduqas.co.uk/qualifications/mathematics/gcse/

**Contents:**

This version contains questions from:

AQA – Sample Assessment Material, Practice set 1 and Practice set 2

OCR – Sample Assessment Material and Practice set 1

Pearson Edexcel – Sample Assessment Material, Specimen set 1 and Specimen set 2

WJEC Eduqas – Sample Assessment Material