# Y7 Maths

MARKSCHEME

## Unit 4 Test

Name: _____

Fractions

**Note**: if the answer to a question is a fraction, make sure it is **fully simplified** ☺

**1** Write $\frac{18}{24}$ as a fraction in its simplest form.

$\frac{3}{4}$ B1

.....

**(1 mark)**

**2** Work out $\frac{3}{5}$ of £40

£24 B1

.....

**(1 mark)**

**3** Work out

**a** $\frac{3}{8}+\frac{1}{4}$ $= \frac{3}{8} + \frac{2}{8}$ M1 using common denominator

$\frac{5}{8}$ A1

.....

**b** $\frac{11}{12}-\frac{3}{4}$ $= \frac{11}{12} - \frac{9}{12} = \frac{2}{12}$ M1

$\frac{1}{6}$ A1

.....

**(4 marks)**

**4** Work out and give your answer as an improper fraction

$3 \times \frac{6}{7}$

$\frac{18}{7}$ B1

.....

**(1 mark)**

**5** Work out $\frac{2}{3}+\frac{3}{4}-\frac{1}{12}$ and give your answer as a mixed number if applicable

$= \frac{8}{12} + \frac{9}{12} - \frac{1}{12} = \frac{16}{12} = 1\frac{4}{12}$ M1

$1\frac{1}{3}$ A1

.....

**(2 marks)**

**6** Write each of these times as a mixed number of hours, in simplest form.

**a** 4 hours 30 minutes

$4\frac{1}{2}$ B1

.....

**b** 2 hours 24 minutes

$2\frac{2}{5}$ B1

.....

**(2 marks)**

7

a Change 24% into a fraction in its simplest form

$\frac{24}{100}$

$\frac{6}{25}$ B1

.....

b Change 150% into a decimal

1·5 B1

.....

c Change $\frac{7}{8}$ into a percentage

$8\overline{)7.0^{6}0^{4}0}$ $0.875$

M1 any correct method to change $\frac{7}{8}$ into 0·875, condone 1 error

OR M1 for $\frac{7}{8} \times \frac{100}{1} = \frac{700}{8}$ and attempt to divide 700 by 8

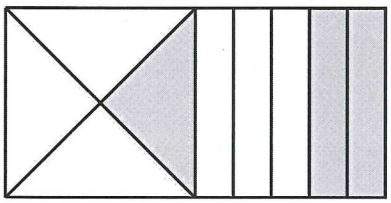
A1

87·5 %

.....

**(4 marks)**

8 This rectangle shown is made from two squares.



What fraction of the rectangle is shaded?

B1 for either $\frac{1}{8}$ (o.e.) or $\frac{1}{5}$ (o.e) seen

$\frac{1}{8} + \frac{1}{5}$

$= \frac{5}{40} + \frac{8}{40}$ M1 using common denominator with one correct numerator

S.C. If students use $\frac{1}{4} + \frac{2}{5}$ and get $\frac{13}{20}$ as final answer, award B0 M1 A0

$\frac{13}{40}$ A1

.....

**(3 marks)**

**9** Scotland has an area of 768 000 km$^2$.

One sixth of the area is woodland.

Three quarters of the area of woodland is covered with pine trees.

Work out the area of woodland in Scotland covered with pine trees.

**Method 1**

$\frac{1}{6} \times \frac{3}{4} = \frac{1}{8}$ M1

$\frac{1}{8}$ of 768 000

$= 8 \overline{)768000}$ 96 000 M1

attempts to divide, condone one error

**Method 2**

$\frac{1}{6}$ of 768000 $= 768000 \div 6 = 128000$ M1

$\frac{3}{4}$ of 128000 $= 128000 \div 4 \times 3$

$= 32000 \times 3$ M1

A1

96000 km$^2$

**(3 marks)**

**10** When you multiply a positive number by a positive fraction that is smaller than one, is your answer bigger or smaller than the original number?

smaller B1

**(1 mark)**

**11** Work out $6\frac{1}{4} - 2\frac{2}{3}$ and leave answer as mixed number.

**Method 1**

$(6 - 2) + \left(\frac{1}{4} - \frac{2}{3}\right)$

$= 4 + \left(\frac{3}{12} - \frac{8}{12}\right)$ M1 common denominator and one correct numerator

$= 4 + \left(-\frac{5}{12}\right)$

M1 for 4 and $-\frac{5}{12}$ seen

**Method 2**

$\frac{25}{4} - \frac{8}{3}$ M1 for converting both fracs to improper

$= \frac{75}{12} - \frac{32}{12}$ M1 common denominator and one correct numerator

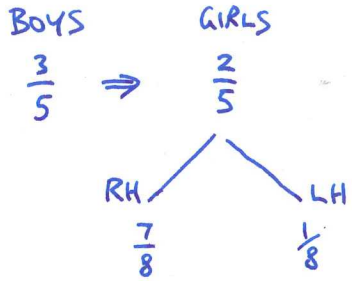
$= \frac{43}{12}$

$3\frac{7}{12}$ A1

**(3 marks)**

**12** Three fifths of the children in a school are boys. Seven eighths of the girls in the school are right-handed.

What fraction of the children in the school are left-handed girls?




$\frac{1}{8}$ of $\frac{2}{5}$

$= \frac{1}{8} \times \frac{2}{5}$ M1

$\frac{1}{20}$ A1

**(2 marks)**

**13** $\frac{1}{2} = 0.5, \quad \frac{1}{4} = 0.25, \quad \frac{1}{8} = 0.125$

**Using the facts above:**

**a** Express $\frac{3}{8}$ as a decimal

Method 1 $\frac{1}{8} \times 3 = 0.125 \times 3$

Method 2 $\frac{1}{4} + \frac{1}{8} = 0.25 + 0.125$

Method 3 $\frac{1}{2} - \frac{1}{8} = 0.5 - 0.125$

M1 for any of these

N.B. No credit for $3 \div 8$

0.375 A1

**(2 marks)**

**b** Explain how you would use the fact that $\frac{1}{8} = 0.125$ to find $\frac{1}{16}$ as a decimal

You would half 0.125.

B1

sp ?! should this be halve ?!

☺

**(1 marks)**

**14** Work out these. In each case give your answer in its simplest form.

**a** $\frac{7}{8} \times \frac{3}{10}$

$\frac{21}{80}$ (B1)

.....

b $\frac{\cancel{24}^{3}}{\cancel{35}_{5}} \times \frac{\cancel{49}^{7}}{\cancel{64}_{8}} = \frac{21}{40}$

(M1) cancelling numbers correctly

or for $\frac{1176}{2240}$ either numerator or denominator correct

$\frac{21}{40}$ (A1)

.....

c $\frac{4}{5} \div \frac{3}{7} = \frac{4}{5} \times \frac{7}{3}$ (M1) for $\times \frac{7}{3}$

(A1) for either

$\frac{28}{15}$ or $1\frac{13}{15}$

.....

d $2\frac{3}{5} \div \frac{7}{10} = \frac{13}{5} \div \frac{7}{10}$

$= \frac{13}{5} \times \frac{10}{7}$ (M1)

(A1) for either

$\frac{26}{7}$ or $3\frac{5}{7}$

.....

~~(8 marks)~~

7 marks

**15** Mr Lambert would like to paint one wall of his office bright blue to make it a 'feature wall'. His wall is rectangular and measures $4\frac{1}{3}$ *m* by $2\frac{1}{2}$ *m*. If each tin of paint will cover $1\frac{2}{3}$ $m^2$, how many tins of paint will he have to buy?

$4\frac{1}{3} \times 2\frac{1}{2}$

$= \frac{13}{3} \times \frac{5}{2}$ M1

$= \frac{65}{6}$ A1

$\frac{65}{6} \div 1\frac{2}{3}$ M1

$= \frac{65}{6} \div \frac{5}{3}$

$= \frac{13}{2}\cancel{\frac{65}{6}} \times \frac{\cancel{3}^{1}}{\cancel{5}_{1}}$ M1 for $\times \frac{3}{5}$

$= \frac{13}{2}$

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

7 tins A1

**(5 marks)**

[End of Test]

TOTAL = 42

If you've finished, and checked your work, try this challenge.
YOU WILL **NOT** BE MARKED ON THIS SECTION

lenge

Can you arrange the numerals 1 to 9 (1, 2, 3, 4, 5, 6, 7, 8 and 9) in a single fraction that equals exactly 1/3 (one third)?

ssible solutions $\frac{5832}{17496}$ OR $\frac{5823}{17469}$