## Maths Reasoning Activity - Decimals

## Warming up*

Q1.


What number is marked at $A$ ?


Q2.
Write these numbers in order of size, starting with the smallest.


Q3.
Write these numbers in order, starting with the smallest.
0.78
0.607
5.6
0.098
4.003


smallest
1 mark

Qu.

Circle two numbers that add together to equal $\mathbf{0 . 2 5}$
0.05
0.23
0.2
0.5

Q5.
Write the missing number to make this division correct.


Q6.
Write these masses in order, starting with the lightest.
$1.25 \mathrm{~kg} \quad 0.99 \mathrm{~kg} \quad 1.025 \mathrm{~kg} \quad 0.009 \mathrm{~kg}$

lightest

## Feeling more confident**

Q1.
Large pizzas cost £8.50 each.
Small pizzas cost $£ 6.75$ each.
Five children together buy one large pizza and three small pizzas.
They share the cost equally.
How much does each child pay?


Q2.
This is part of a number line.
Write in the missing numbers.


1 mark
1 mark
Q3.
Here are five number cards.


Use four of the cards to complete these calculations.


Q4.
Write the missing number.


Q5.
Circle two numbers that add together to equal $\mathbf{0 . 2 5}$
0.05
0.23
0.2
0.5

Q6.
Amy thought of a number.
She added 0.5 to her number and then doubled the result.
Then she subtracted 0.5 and doubled the new result.
Her final answer was 61
What number did Amy start with?


## Q7.

Look at this number.

## 23,451.96

Write the digit that is in the hundreds place.


Write the digit that is in the hundredths place.

mark
Ready for a challenge***

Q1.
Forest School sells badges for charity.


For each badge sold, $£ 1.20$ is given to a charity.
How much does the charity get when $\mathbf{1 2}$ badges are sold?

## £

1 mark
If the charity got $£ \mathbf{2 4}$, how many badges were sold?


Q2.
One gram of gold costs $£ 32.94$
What is the cost of half a kilogram of gold?


Q3.
Four large circles and five small circles fit exactly inside this rectangle.


Not actual size
The diameter of a large circle is $\mathbf{1 7 . 5}$ centimetres.
Calculate the diameter of a small circle.


Q4.
Here is part of a number line.
Write in the numbers missing from the two empty boxes.


Q5.
A torch costs £7.65
Kate buys a torch and two batteries.


She pays $£ 8.75$ altogether.
How much does one battery cost?


Q6.
Here is a number pyramid.
The number in a box is the product of the two numbers below it.
Write the missing numbers.


## Q7.

Circle two decimals that have a difference of 0.5
0.2
0.25
0.4
0.45
0.6
0.75

1 mark

Q8.
This is Kirsty's recipe for breakfast cereal.

50 grams of oats
30 grams of raisins
40 grams of nuts


If she uses 125 grams of oats, how many grams of raisins does she need?


## Maths Reasoning Activity - Decimals

## Answers

Warming up*
Mark schemes

Q1
7.2

Q2.
Numbers in order as shown:


Q3.
Numbers in order, as shown:

| 0.098 | 0.607 | 0.78 | 4.003 |
| :--- | :--- | :--- | :--- |

Q4.
Numbers circled as shown:

Accept alternative unambiguous positive indications, e.g. numbers ticked or underlined.

Q5.
10

Q6.
Masses in correct order, as shown:

| 0.009 kg | 0.99 kg | 1.025 kg |
| :--- | :--- | :--- |

## lightest

All masses must be in the correct order for the award of ONE mark.
Accept for ONE mark the masses written in reverse order AND the label lightest has been changed to follow suit.

Misreads and transcription errors are not allowed.

## Feeling more confident**

Mark schemes

## Q1.

Award TWO marks for the correct answer of $£ 5.75$
If the answer is incorrect, award ONE mark for evidence of an appropriate method, e.g:

- $£ 6.75 \times 3=£ 20.25$
$£ 20.25+£ 8.50=£ 28.75$
$£ 28.75 \div 5$
Answer need not be obtained for the award of ONE mark.

Q2.
2.089 in first box
2.095 in second box

## Accept equivalent fractions

Q3.


Numbers within calculations may be given in either order.

Q4.
2.5

Accept equivalent fractions or decimals

Q5.
Numbers circled as shown:


Accept alternative unambiguous positive indications, e.g. numbers ticked or underlined.

Q6.
Award TWO marks for the correct answer of 15
If the answer is incorrect, award ONE mark for evidence of appropriate working, eg:

- $\quad 61 \div 2=30.5$
$30.5+0.5=31$
$31 \div 2=15.5$
15.5-0.5 = wrong answer


## OR

- $\quad 61 \div 2=30.5$
$30.5-0.5=30$ (step error)
$30 \div 2=15$
15-0.5 = 14.5 (wrong answer)
Working must be carried through to reach an answer for the award of ONE mark.

Up to $2 m$

## Q7.

(a) 4

$$
\text { Do not accept four OR } 400
$$

(b) 6

Do not accept six OR $\frac{6}{100}$

Commentary: This question assesses place value in whole numbers up to $1,000,000$ ( 5 N 3 a ) and in decimals (5F6b).

Ready for a challenge***
Mark schemes

Q1.
(a) $£ 14.40$

Do not accept £14.4
1
(b) 20

Do not accept £20

Q2.
Award TWO marks for the correct answer of $£ 16,470$
If the answer is incorrect, award ONE mark for evidence of an appropriate method, e.g:

- $£ 32.94 \times 1000=£ 32,940$

OR

- $£ 32.94 \times 500$
$=£ 3294 \times 5$
Answer need not be obtained for the award of ONE mark.

Up to 2

Q3.
Award TWO marks for the correct answer of 14
If the answer is incorrect, award ONE mark for evidence of appropriate method, eg
$17.5 \times 4=70$
$70 \div 5$
Accept for ONE mark 140 OR 1.4 as evidence of appropriate method.
Answer need not be obtained for the award of ONE mark.

Up to 2 (U1)

Q4.

(a) Writes 8.2 in the left-hand box.
(b) Writes $\mathbf{1 0 . 1}$ in the righthand box.

Q5.
Award TWO marks for the correct answer of 55p OR $£ 0.55$
If the answer is incorrect, award ONE mark for evidence
of appropriate working, eg $8.75-7.65=1.10$
$1.10 \div 2$ = wrong answer
Accept: for ONE mark £55 OR £55p OR 0.55p as evidence of appropriate working.
Working must be carried through to reach an answer for the award of ONE mark.

Up to 2

Q6.
Award TWO marks for three numbers correctly placed.


If the answer is incorrect award ONE mark for two numbers correctly placed.
Commentary: This question involves multiplying and dividing decimals where the answer has up to two decimal places (6F9).

Up to 2

Q7.


Do not award the mark if additional incorrect numbers are circled.
Accept alternative unambiguous indications, eg numbers ticked, crossed or underlined.

Q8.
Award TWO marks for the correct answer of 75
If the answer is incorrect, award ONE mark for evidence of appropriate working, eg:

- $125 \div 50=2.5$
$2.5 \times 30=$ wrong answer

OR

- $\quad 50 \mathrm{~g}$ oats 30 g raisins

25 g oats $\quad 15 \mathrm{~g}$ raisins $\quad(\div 2)$
125 g oats wrong answer $(\times 5)$
Working must be carried through to reach an answer for the award of ONE mark.

Up to 2

