THIRD SPACE
LEARNING

Reasoning Questions

25 mark math reasoning questions with answers

Reasoning Questions for 5th Graders

1 $465 +$ [ ] $= 605$

2   This table shows average house prices in five cities in Britain:

Town	Average house price
Portsmouth	£215,700
Bournemouth	£265,000
Southampton	£214,600
Edinburgh	£203,500
Bristol	£253,400

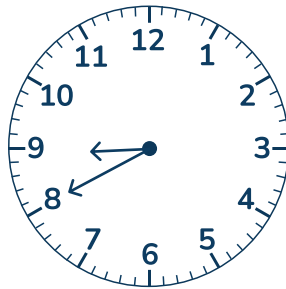Which of these cities has the **lowest** average property price?

3   Write the three missing digits to make this subtraction correct.

$$\begin{array}{ccc} 7 & 3 & 7 \\ -\quad 4 & \Box & 3 \\ \hline \Box & 5 & \Box \end{array}$$

4   Samir has a watch that shows analogue time. This is how his watch shows 20 minutes to 9 in the evening:

Anna has a digital watch that shows the time using the **24-hour clock**. What time would her watch show in 50 minutes?

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┌──────────┐ ┌────┐
│     :    │ │    │
└──────────┘ └────┘
```
                                    1 mark

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5   **a**   Write the number that is twenty less than one million.

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┌──────────┐ ┌────┐
│          │ │    │
└──────────┘ └────┘
```
                                    1 mark

b   Write the number that is ten thousand less than ten million.

```
┌──────────┐ ┌────┐
│          │ │    │
└──────────┘ └────┘
```
                                    1 mark

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6 Write these numbers in order from smallest to largest:

21.54   21.398   21.045   21.504

_____   _____   _____   _____
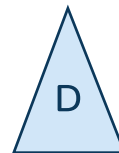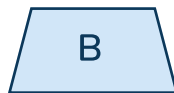
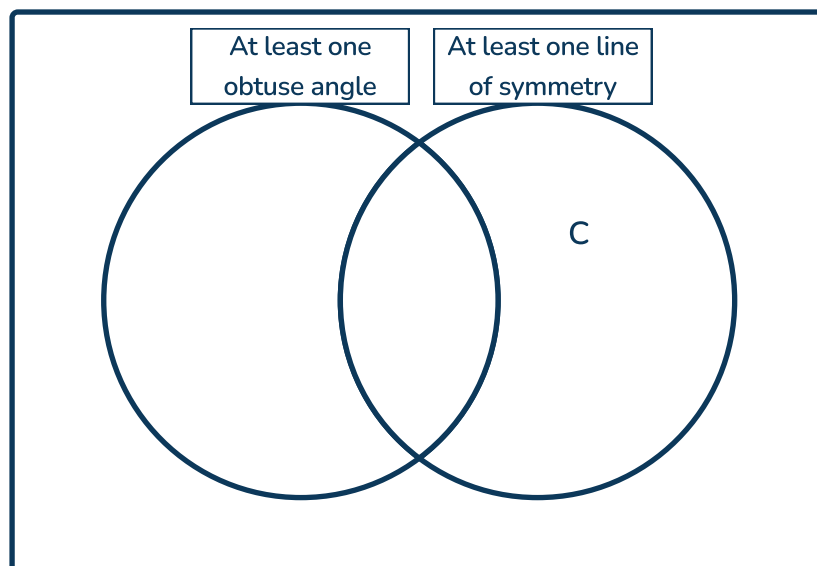smallest   largest

1 mark

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7 Here are 5 shapes, labelled A-E:

Write the letter for each shape in the correct place on the Venn diagram.
One has been done for you.

2 marks

Reasoning Questions for 5th Graders

8 **a** $\dfrac{2}{6} + \dfrac{3}{12} + \dfrac{1}{3} = \boxed{\dfrac{}{}}$

b Write the letter for each fraction in order of size starting with the **smallest** fraction.

One has been done for you.

A $\dfrac{9}{10}$ B $\dfrac{1}{2}$ C $1\dfrac{3}{4}$ D $\dfrac{40}{30}$ E $\dfrac{4}{5}$

___   E   ___   ___   ___

---

9 Jake lived in London and was travelling **530.4** kilometres to Scotland for his holiday. He drove 205.72 kilometres, then he stopped for a break.
After another 135.6 kilometres he needed to stop for fuel.
How much further does he still need to travel to reach his holiday destination?

[km] ☐

Reasoning Questions for 5th Graders

10 Here is part of a train timetable:

Runford	09:17	10:10	11:12	12:00
Telham	09:24	10:19	11:22	12:11
Serbridge	09:46		11:47	12:35
Colshore	09:57	10:54	11:56	12:49
Polmouth	10:05	11:01	12:02	12:58

a How long does it take the **09:17 train** to travel from **Serbridge to Polmouth?**

minutes ☐

1 mark

b The 10:10 train from Runford takes 24 minutes to travel from Telham to Serbridge. Fill in the missing time on the timetable.
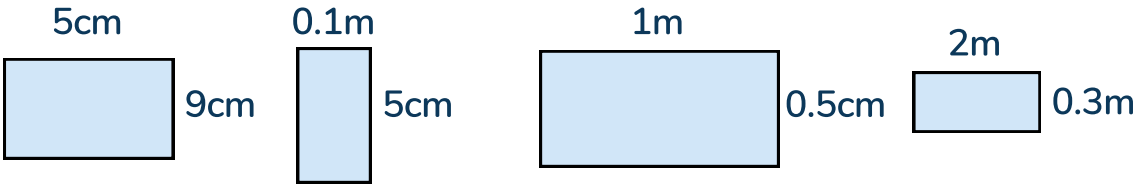
☐

1 mark

11 Round each number in the table to the nearest 100 and to the nearest 10,000. One has been done for you.

Number	Rounded to nearest 100	Rounded to nearest 10,000
45,198	45,200	
172,057		

☐

2 marks

12 Tick (✓) the **two** rectangles that have the same **area**.

Diagrams have not been drawn to scale.

5cm

0.1m

1m

2m

9cm

5cm

0.5cm

0.3m

1 mark

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13 The storeroom at a supermarket has:

12 cases of salt and vinegar flavour crisps

8 cases of cheese and onion flavour crisps

Each case contains 6 boxes of crisps.

Each box contains 24 packets of crisps.

How many **packets** of crisps are there in **total**?
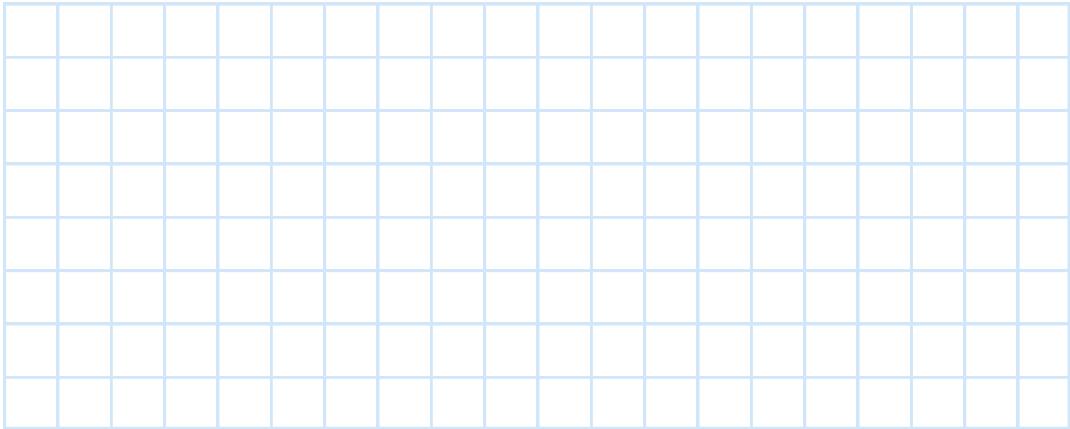
2 marks

Reasoning Questions for 5th Graders

14 24 x $\boxed{}$ = 192

1 mark

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15 Tick **all** the shapes that have all of these properties:
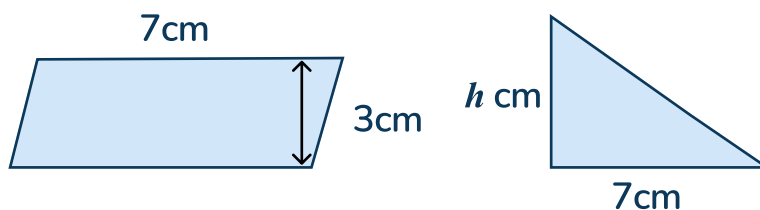
Are quadrilaterals
Have diagonals that are of equal length
Have opposite sides that are of equal length

2 marks

---

16 The areas of the parallelogram and triangle are the same.
The diagrams have not been drawn to scale.

7cm

3cm

h cm
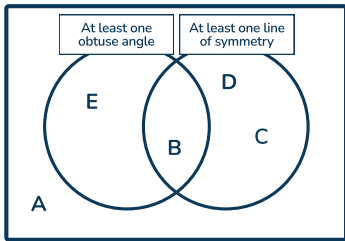
7cm

Calculate the height (h) of the triangle.

$h = $ cm

1 mark

Answers

Question Number	Question	Answer	Mark	Acceptable answer or additional guidance
1	465 + ? = 605	140	1m	
2	Which of these cities has the lowest average property price?	Edinburgh	1m	
3	Write the three missing digits to make this subtraction correct.	Award **TWO** marks for: $\quad$ 7 $\quad$ 3 $\quad$ 7 $-$ $\quad$ 4 $\quad$ [8] $\quad$ 3 $\quad$ [2] $\quad$ 5 $\quad$ [4] If the answer is incorrect, award **ONE** mark for two digits correct.	Up to 2m	
4	Anna has a digital watch that shows the time using the 24-hour clock. What time would her watch show in 50 minutes?	21:30	1m	Do not accept 9:30pm

Reasoning Questions for 5th Graders

Question Number	Question	Answer	Mark	Acceptable answer or additional guidance
5	a) Write the number that is twenty less than one million. b) Write the number that is ten thousand less than ten million.	a) 999,980 b) 9,990,000	1m 1m	
6	Write these numbers in order from smallest to largest: 21.54, 21.398, 21.045, 21.504	21.045 21.398 21.504 21.54	1m	
7	Write the letter for each shape in the correct place on the Venn diagram. One has been done for you.	Award **TWO** marks for all 4 letters correctly placed: If the answer is incorrect award **ONE** mark for 3 letters correctly placed	Up to 2m	Accept 'A' drawn anywhere outside the circles. Accept alternative unambiguous indications. Do not accept letters written in more than one region.

Reasoning Questions for 5th Graders

Question Number	Question	Answer	Mark	Acceptable answer or additional guidance
8	a) $\frac{2}{6} + \frac{3}{12} + \frac{1}{3} = ?$ b) Write the letter for each fraction in order of size starting with the smallest fraction.	a) $\frac{11}{12}$ b) B E A D C	1m 1m	Accept equivalent fractions, e.g. $\frac{22}{24}$ Accept: $\frac{1}{2}$, E, $\frac{9}{10}$, $\frac{40}{30}$, $1\frac{3}{4}$
9	How much further does he still need to travel to reach his holiday destination?	Award **TWO** marks for the correct answer of 189.08km. If the answer is incorrect, award **ONE** mark for evidence of an appropriate method, e.g. $530.4 - 205.72 = 324.68$ $324.68 - 135.6$ OR $205.72 + 135.6 = 341.32$	Up to 2m	
10	a) How long does it take the 09:17 train to travel from Serbridge to Polmouth? b) The 10:10 train from Runford takes 24 minutes to travel from Telham to Serbridge. Fill in the missing time on the timetable.	a) 19 minutes b) 10:43	1m 1m	Accept any unambiguous correct answer, e.g. 43 minutes past 10, 17 minutes to 11, 10-43, 10;43, 10 43

Reasoning Questions for 5th Graders

Question Number	Question	Answer	Mark	Acceptable answer or additional guidance
11	Round each number in the table to the nearest 100 and to the nearest 10,000. One has been done for you.	Award **TWO** marks for all three boxes completed correctly: | Number	Rounded to nearest 100	Rounded to nearest 10,000
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45,198	45,200	50,000
172,057	172,100	170,000 | Award **ONE** mark for any two correct boxes.	Up to 2m	
12	Tick (✓) the two rectangles that have the same area. Diagrams have not been drawn to scale.	5cm / 9cm · 0.1m / 5cm ✓ · 1m ✓ / 0.5cm · 2m / 0.3m	1m	Accept any unambiguous indication.
13	How many packets of crisps are there in total?	Award **TWO** marks for the correct answer of 2,880. If the answer is incorrect, award **ONE** mark for evidence of an appropriate method with no more than one arithmetic error, e.g. 12 + 8 = 20 20 x 6 = 120 120 x 24	Up to 2m	

Reasoning Questions for 5th Graders

Question Number	Question	Answer	Mark	Acceptable answer or additional guidance
14	24 x ? = 192	8	1m	
15	Tick all the shapes that have all of these properties:	Square ticked Rectangle ticked	1m 1m	Accept other clear indications of the correct shapes
16	Calculate the height (h) of the triangle.	6cm	1m	

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