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## Year 5 Maths Reasoning Test Set: Paper A

1. a) Measure the following line, giving the answer in cm .

b) Measure the following line giving the answer in mm.
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2. Some children count the number of vehicles that pass a school in one hour. They present the data using a pictogram.

$=4$ vehicles

a) How many more cars passed the school compared with vans and lorries?

b) How many vehicles passed the school in total?

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3. Sebastian has 4 football shirts, and three pairs of shorts. Each time he goes to play football with his friends he likes to wear a different combination of one shirt and one pair of shorts.
How many different combinations of shirts and shorts can he wear?

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4. Here are 2 lines.

Circle any of these words that describe these 2 lines.
perpendicular horizontal parallel vertical
5. Complete these sequences
a)

|  |  | 84 | 91 | 98 | 105 |
| :--- | :--- | :--- | :--- | :--- | :--- |

b)

| 375 |  | 425 | 450 |  | 500 |
| :--- | :--- | :--- | :--- | :--- | :--- |

6. Fill in the missing numbers to make this subtraction calculation correct.

$\qquad$

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7. Layla records the temperature in the playground every hour during the school day.
Here are the results:

a) What is the highest temperature recorded?

b) The temperature is $8^{\circ} \mathrm{C}$ twice in the day. Estimate how many minutes between these two times.

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8. A scientist collects three samples of soil. They weigh $45 \mathrm{~kg}, 32 \mathrm{~kg}$ and 114 kg . The samples are combined and then divided into 100 packs of equal weight for testing the growth of a plant.
What weight will each pack weigh? Give your answer in kilograms.

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9. Two of these calculations give the same answer. Circle the calculation that gives a different answer to the other two.

$$
\frac{2}{3} \text { of } 48 \quad \frac{5}{8} \text { of } 48 \quad \frac{5}{6} \text { of } 36
$$

10. At the end of the credits of 2 television programmes are the years the programmes were produced. Here are the years.
MCMXCIV MMXVI

How many years are there between the production of each programme?

11. 26243 spectators attended a football match. A local newspaper reported that
the attendance was twenty-six thousand. To what was the attendance rounded? Circle the correct answer.

10
100
1000
10000
12. Order the following fractions from smallest to largest:

1 mark

$$
\frac{7}{8}
$$

$$
\frac{3}{4}
$$

$$
\frac{1}{2}
$$

$$
\frac{5}{8}
$$

$$
\frac{9}{16}
$$

smallest
largest
$\square$
13. Circle the numbers that are factors of both 32 and 48 .

| 2 | 3 | 4 | 5 | 6 | 7 | 8 | 10 | 12 | 15 | 16 |
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14. A school buys 16 digital cameras. Each camera costs $£ 146$. What is the total cost of the 16 cameras?

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15. Each number in a square is the total of the two adjoining numbers in circles. Calculate the three missing numbers:

16. Here is a shape on a grid.
a) Reflect the shape about the solid horizontal line.

b) Translate the new shape 8 places to the right.
17. Anna and Shen each have a bottle of water.

Anna has a 500 ml bottle and drinks half of the bottle. Shen has a 330 ml bottle and drinks three quarters of the bottle. Explain why Anna drinks more than Shen.

18. Complete the following, writing each number as a percentage, fraction and decimal:
a)

$$
45 \%=\overline{100}=0
$$

b)

$$
\%=\frac{78}{100}=0
$$

19. Using the line on the page, draw accurately an angle of $116^{\circ}$.
20. A geologist measures the mass of 2 rocks. One weighs 19.072 kg , and the other weighs 3.726 kg . Calculate the difference in mass between the 2 rocks.

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| question | answer | marks | notes |
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| 1. |  |  |  |
| a | 12.6 cm | 1 | Please be aware that line size will vary depending on printer settings. |
| b | 141 mm | 1 |  |
| 2. |  |  |  |
| a | 9 | 1 |  |
| b | 32 | 1 |  |
| 3. |  |  |  |
|  | 12 | 2 | 2 marks for a correct answer. 1 mark for 10 or 11 , with evidence of recording 10 or 11 combinations with no repetition. |
| 4. |  |  |  |
|  | horizontal and parallel | 1 | Both must be circled. |
| 5. |  |  |  |
| a | 70, 77 | 1 |  |
| b | 400, 475 | 1 |  |
| 6. |  |  |  |
|  | 8417-4753 | 2 | 2 marks for all correct. <br> 1 mark if 3 digits correct. |
| 7. |  |  |  |
| a | $11^{\circ} \mathrm{C}$ | 1 |  |
| b | 210 minutes | 2 | 2 marks for 210 minutes. 1 mark for correctly identifying 11:00 and $14: 30$ as the times the temperature is $8^{\circ} \mathrm{C}$. |
| 8. |  |  |  |
|  | 1.91 kg | 2 | 2 marks for a correct answer. 1 mark for correct method, but one mistake in calculations. |
| 9. |  |  |  |
|  | $\frac{2}{3}$ of 48 | 1 |  |


16.


|  | Anna drinks 250 ml , Shen drinks 247.5 ml | 2 | 2 marks for calculating how much both Anna <br> and Shen drink and giving <br> correct answer. <br> 1 mark for correctly working out how much <br> either Anna or Shen drinks. |
| :--- | :--- | :---: | :---: | :---: |
| 18. | $45 \%=\frac{45}{100}=0.45$ | 1 |  |
| a | $78=\frac{78}{100}=0.78$ | 1 |  |
| b |  |  |  |

19. 

|  | Answer at the back of the exam. | 1 | An angle between $114^{\circ}$ and $118^{\circ}$. |
| :--- | :--- | :---: | :--- |
| $\mathbf{2 0 .}$ | 15.346 kg | 2 | 2 marks for the correct answer. <br> 1 mark for subtraction with 1 error in <br> calculation. |
|  |  | Total <br> 35 |  |

