## Key Stage 2

## Mathematics

Reasoning: Pack 3 Test 3b

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## Key Stage 2 Maths Reasoning: Pack 3 Test 3b

1. A sports shop sells 4 different colour football shirts (blue, red, gold and white) and 3 different colour pairs of shorts (black, white and blue).

How many different combinations of football kit can be worn using these different shirts and shorts?

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## 2. Jaques is baking a cake.

He has measured out some plain flour on a set of scales. The reading is shown below.
Jaques needs to add 80 g of butter to the flour on the scales.
Mark on the scales where the needle will be after Jaques has added 80 g of butter.

3. Place the following numbers on the Venn diagram.
5
7
9
11
13

4. In this parallelogram, calculate the angle marked $Y$.

5. Draw lines to match the equivalent decimal fractions, fractions and percentages. One has been completed for you.
$\frac{1}{2}$
$\frac{3}{4}$
$\frac{2}{5}$
$\frac{5}{8}$
$\frac{2}{3}$
6. Complete this division calculation.

7. In the London Olympics 2012, the gold, silver and bronze medals in the men's 100 m sprint went to:

| Medal | Athlete | Time |
| :---: | :---: | :---: |
| Gold | Usain Bolt | 9.63 |
| Silver | Yohan Blake | 9.75 |
| Bronze | Justin Gatlin | 9.79 |

Calculate the time between gold and silver, then the time between silver and bronze. What is the difference between these two answers?

8. A school raises $£ 746$ at a charity event.

The money is shared equally amongst 8 local charities.
How much will each charity be given?

9. The drawing below is drawn to a scale of 1 cm to 2 m .

Measure the drawing and calculate the area of the full-sized shape.


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10. Order the following numbers from the smallest to the largest.
696996
966969
969699
966699
696699

smallest
11. Translate the shape so that point $A$ is translated to point $B$.

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12.A dancer spends one hour and fifteen minutes altogether at her two dancing lessons; Street Dance and Tap Dance.
The lengths of the classes are at a ratio of 3:2.
How much longer is the Street Dance class than the Tap Dance class?

13. The attendances in UK cinemas for the first 4 months of 2015 are displayed in the table below.
a) Round each figure to the nearest 1 million.

| Month | Attendance | Attendance rounded to the <br> nearest million |
| :---: | :---: | :---: |
| January | 15586610 |  |
| February | 15162922 |  |
| March | 11544674 |  |
| April | 15125895 |  |

b) Using the rounded figures, what is the mean average monthly total attendance in cinemas in the UK in the first 4 months of the year?

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14. Continue this sequence:

26 978, 27 978, 28 978,

15. Draw 2 lines that intersect at $32^{\circ}$.
16. Write the following number as a decimal fraction.

17. A gaming shop offers $24 \%$ discount to customers when 3 console games are bought. Jamie buys 3 console games costing $£ 16, £ 19$ and $£ 25$ before the discount is applied.

How much will the games cost altogether after the discount has been applied?

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18. A group of children measured the height of all the children in Year 6.

The continuous data bar chart shows the results.

a) How many children measure less than 1.20 m in height.

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b) Work out the difference between the number of children who are 1.40 m or taller and those that are less than 1.10 m .

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19. An ice cream van sells chocolate and vanilla ice cream.

In one week, three fifths of the 935 ice creams that are sold are chocolate.
How many chocolate ice creams were sold that week?

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20. Here is a timetable for trains travelling from Sheffield to London St Pancras.

| Sheffield |  | $06: 00$ | $06: 03$ | $06: 29$ |  | $07: 03$ | $07: 29$ |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Chesterfield | $05: 42$ | $06: 13$ | $06: 19$ | $06: 40$ | $07: 01$ | $07: 20$ | $07: 41$ |
| Derby | $06: 04$ | $06: 33$ |  | $07: 05$ | $07: 21$ |  | $08: 01$ |
| Nottingham |  |  | $07: 01$ |  |  | $07: 57$ |  |
| Leicester | $06: 39$ | $07: 06$ |  | $07: 36$ | $07: 56$ |  | $08: 24$ |
| London St Pancras | $08: 07$ | $08: 39$ |  | $08: 56$ | $09: 10$ |  | $09: 33$ |

a) At what time does the quickest train to London depart from Sheffield?

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b) A passenger needs to travel from Sheffield to Nottingham, arriving before quarter to eight. What time should they depart from Sheffield?

c) A passenger arrives at Chesterfield train station at quarter past 6. How long will they need to wait for the next train to depart to London?

21. A pupil measures the temperature in his garden each morning.

The table below shows the temperatures in one week.

| Sunday | $5^{\circ} \mathrm{C}$ |
| :--- | :---: |
| Monday | $2^{\circ} \mathrm{C}$ |
| Tuesday | $0^{\circ} \mathrm{C}$ |
| Wednesday | $0^{\circ} \mathrm{C}$ |
| Thursday | $2^{\circ} \mathrm{C}$ |
| Friday | $1^{\circ} \mathrm{C}$ |
| Saturday | $4^{\circ} \mathrm{C}$ |

What is the mean temperature?

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| question | answer | marks | notes |
| :---: | :---: | :---: | :---: |
| 1. |  |  |  |
|  | 12 combinations ( $4 \times 3$ ) | 1 |  |
| 2. |  |  |  |
|  | 190g. | 1 | 1 mark for a reading shown just after 185 g , but no more than 200 g . |
| 3. |  |  |  |
|  |  | 1 |  |
| 4. |  |  |  |
|  | $57^{\circ}$ or 57 degrees | 1 | degrees or ${ }^{\circ}$ must be written for the mark. |
| 5. |  |  |  |
|  |  | 2 | 2 marks for all 4 correct. <br> 1 mark for 2 correct. |
| 6. |  |  |  |
|  | 502 94518 | 2 | 2 marks for all correct. <br> 1 mark for 1 digit correct. |
| 7. |  |  |  |
|  | $\begin{aligned} & 0.08 \text { seconds } \\ & (0.12-0.04) \end{aligned}$ | 2 | 2 marks for the correct answer. 1 mark for identifying the gap between gold and silver as 0.12 seconds and the gap between silver and bronze as 0.04 seconds. |
| 8. |  |  |  |
|  | £93.25 | 2 | 2 marks for the correct answer. <br> 1 mark for a correct method with only one mistake in calculating. |


| question | answer | marks | notes |
| :---: | :---: | :---: | :---: |
| 9. |  |  |  |
|  | $112 \mathrm{~m}^{2}$ | 2 | 2 marks for a correct answer. <br> 1 mark for correctly identifying that the full size is $14 \mathrm{~m} \times 8 \mathrm{~m}$. |
| 10. |  |  |  |
|  | 696 699, 696 996, 966 699, 966 969, 969699 | 1 |  |
| 11. |  |  |  |
|  |  | 1 |  |
| 12. |  |  |  |
|  | 15 minutes | 2 | 2 marks for the correct answer. <br> 1 mark for a correct method with only one mistake in calculating. |
| 13. |  |  |  |
| a | Month Attendance Attendance rounded <br> to the nearest milion <br> January 15586610 16000000 <br> February 15162922 15000000 <br> March 11549674 $\mathbf{1 2 0 0 0} 000$ <br> April 15125895 $\mathbf{1 5 0 0 0} 000$ | 1 | 1 mark for all correct. |
| b | 14500000 | 1 |  |
| 14. |  |  |  |
|  | 29 978, 30 978, 31978 | 1 |  |


| question | answer | marks | notes |
| :---: | :---: | :---: | :---: |
| 15. |  |  |  |
|  |  | 1 |  |
| 16. |  |  |  |
|  | 0.034 | 1 |  |
| 17. |  |  |  |
|  | $£ 45.60$ | 2 | 2 marks for a correct answer 1 mark for incorrect answer with only 1 mistake in calculation |
| 18. |  |  |  |
| a | 28 children | 1 | allow 27-29 |
| b | 7 children | 2 | 2 marks for an answer from 6 to 8 inclusive. <br> 1 mark for an answer of 5 or 9 . |
| 19. |  |  |  |
|  | 561 | 2 | 2 marks for the correct answer. <br> 1 mark for a correct method with only one mistake in calculating. |
| 20. |  |  |  |
| a | 07:29 | 1 |  |
| b | 06:03 | 1 |  |
| C | 25 minutes | 1 |  |
| 21. |  |  |  |
|  | $2^{\circ} \mathrm{C}$ | 2 | 2 marks for the correct answer. <br> 1 mark for a correct method in adding the temperatures and dividing the answer by <br> 7, even if the calculation in incorrect. |
|  |  | Total 35 |  |

