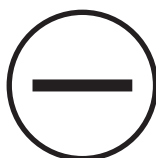


# Key Stage 2

## Mathematics

### Reasoning: Pack 1 Test 1b

|      |  |
|------|--|
| Name |  |
| Date |  |



35

total marks



- 4) A small bottle of lemonade is  $\frac{2}{3}$  the size of the large bottle. The small bottle costs 80p and the large bottle costs £1.15. If the same volume of lemonade is purchased, Amir argues that it is cheaper to buy large bottles rather than small bottles. Explain fully why Amir is correct:

2 marks

- 5) In the number 348 902.53, in what place are the digits 3?

Answer:

Answer:

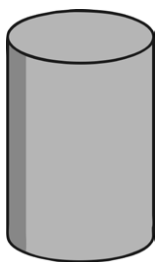
2 marks

- 6) Write the number 2017 in Roman numerals:

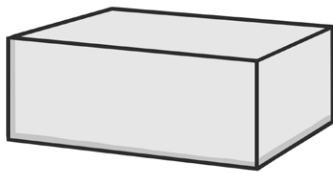
Answer:

1 mark

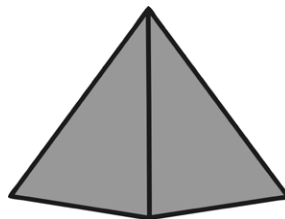
- 7) Write the following shapes in the Carroll Diagram:



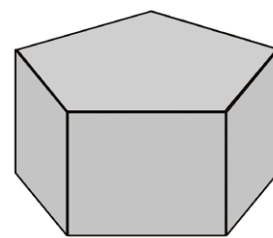
cylinder



cuboid



square-based  
pyramid



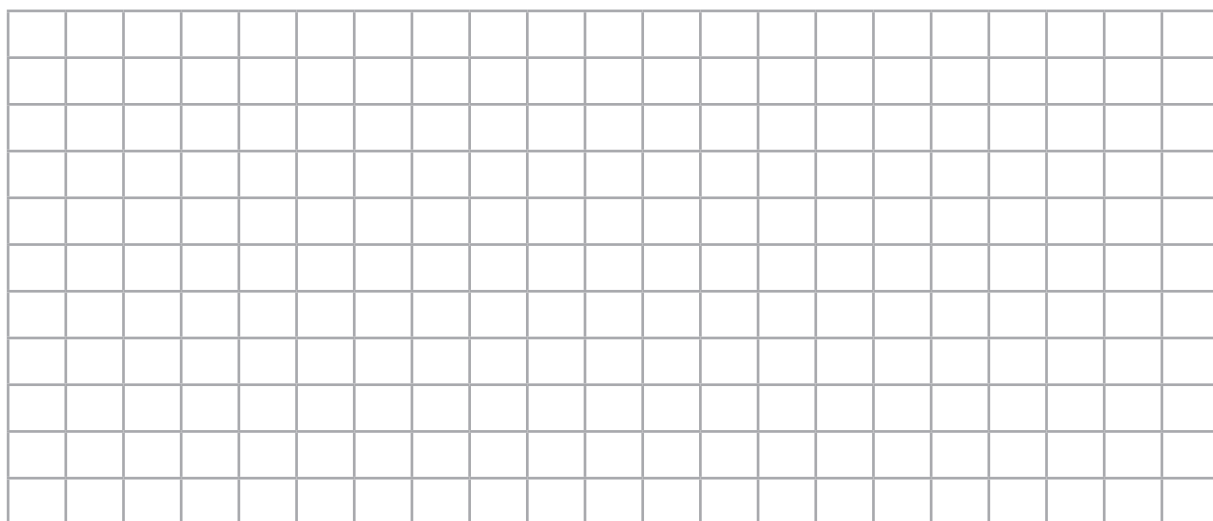
pentagonal prism

|                              | Has 6 or more vertices | Has less than 6 vertices |
|------------------------------|------------------------|--------------------------|
| Has at least one curved face |                        |                          |
| Has no curved faces          |                        |                          |

2 marks

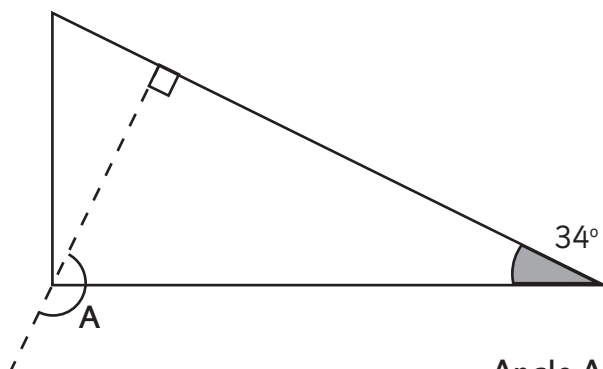
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- 8) A school takes delivery of some boxes of balls. In each box there are 5 red balls, 3 blue balls and 2 yellow balls. In the whole delivery there are 70 red balls. How many blue and yellow balls are there?



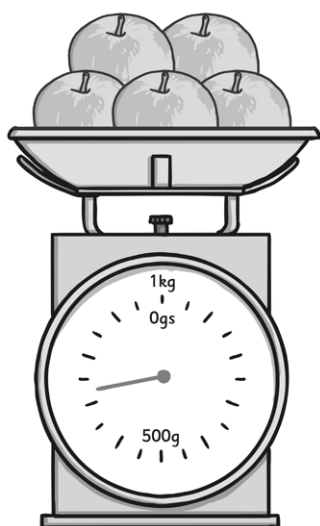
Answer: \_\_\_\_\_ blue balls \_\_\_\_\_ yellow balls

- 9) Calculate the size of angle A.



Angle A:

- 10) There are 5 apples on the scales. How heavy is 1 apple in kilograms?



Answer:

 kg

2 marks

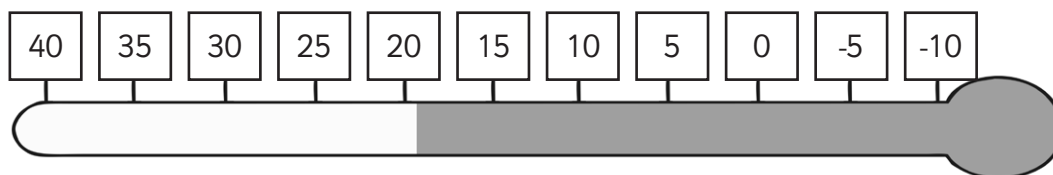
1 mark

1 mark

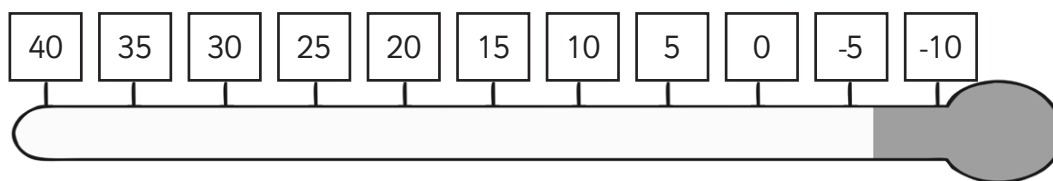
Total for this page

- 11) These thermometers show the temperature inside and outside of a school at 9am. Both thermometers have the same scale. The difference in the temperature inside and outside is  $26^{\circ}\text{C}$ .

### Inside



### Outside



What is the inside and outside temperature?

Inside:

Outside:

2 marks

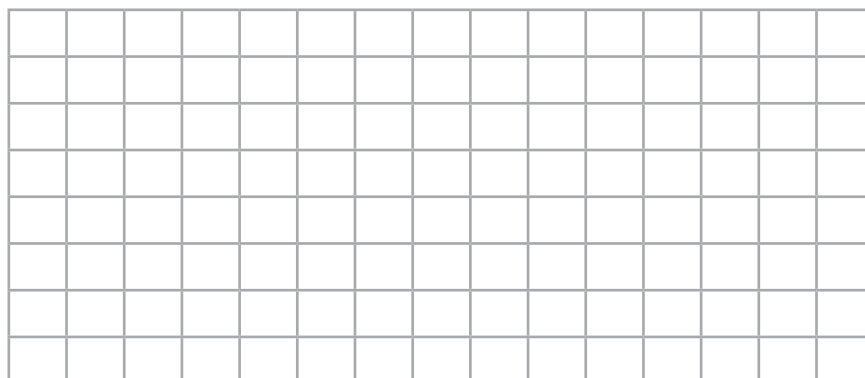
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12) Here is a rectangle:



A new rectangle is drawn, which is twice the length and twice the width of the original rectangle.

a) Draw the new rectangle:



Jack says that the area of the new rectangle will be twice the area of the original.

b) Explain why Jack is **not** correct:



1 mark



1 mark



Total for  
this page

13) Complete this division calculation by filling in the missing numbers:

$$\begin{array}{r}
 246 \\
 3 \square \overline{) \square 1 \square 2} \\
 \underline{74} \\
 17\square \\
 \underline{148} \\
 2\square 2 \\
 \underline{2\square 2} \\
 000
 \end{array}$$

14) A supermarket sells packs of 6 cans of lemonade. Each can contains 330ml of lemonade.

How many litres of lemonade is there in 4 packs of 6 cans?

Answer:

 l

2 marks

1 mark

Total for this page

15) Here is a bus timetable:

| Darlington - Sunderland                   |       | via Newton Aycliffe, Ferryhill Service 217 |       |       |       |
|---|-------|--|-------|-------|-------|
| Sunday                                    |       |  |       |       |       |
|   |       |  |       |       |       |
| DARLINGTON, Bus Station                   | 19:40 | 20:40                                      | 21:40 | ...   | 22:40 |
| Aycliffe Village, North Briton            | 19:55 | 20:55                                      | 21:55 | ...   | 22:55 |
| Newton Aycliffe, Stephenson Way/Pease Way | 20:03 | 21:03                                      | 22:03 | ...   | 23:03 |
| Greenfield Way, Labour Club               | 20:06 | 21:06                                      | 22:06 | ...   | ...   |
| Rushyford, Eden Arms                      | 20:11 | 21:11                                      | 22:11 | ...   | 23:16 |
| Chilton, Wheatsheaf                       | 20:13 | 21:13                                      | 22:13 | ...   | 23:18 |
| Ferryhill Village, Bus Station            | 20:19 | 21:19                                      | 22:19 | 22:49 | 23:24 |
| Wood Lane Estate, Shops                   | 20:22 | 21:22                                      | 22:22 | 22:52 | ...   |
| West Cornforth, Market Place              | 20:31 | 21:31                                      | 22:31 | 23:01 | ...   |
| Coxhoe, Police Station                    | ...   | 21:39                                      | ...   | 23:09 | ...   |
| Bowburn, Garage                           | ...   | 21:44                                      | ...   | 23:14 | ...   |
| Sherburn Village, Grey Horse              | ...   | 21:54                                      | ...   | ...   | ...   |
| Pittington, Cross Roads                   | ...   | 21:59                                      | ...   | ...   | ...   |
| West Rainton                              | ...   | 22:06                                      | ...   | ...   | ...   |
| Houghton-le-Spring, Bus Station           | ...   | 22:13                                      | ...   | ...   | ...   |
| SUNDERLAND, Park Lane Bus Station         | ...   | 22:29                                      | ...   | ...   | ...   |

a) George wants to leave Newton Aycliffe at half past nine and return to Bowburn. What time will he arrive at Bowburn?

Answer:

1 mark

b) How many minutes slower is the last bus from Darlington to Ferryhill Village than the other buses?

Answer:

1 mark

c) How long is the shortest possible journey?

Answer:

1 mark

Total for this page



16) Here is the number of goals scored by the top 8 teams in the Premier League during the season 2014-15:

|                   |    |
|-------------------|----|
| Chelsea           | 73 |
| Manchester City   | 83 |
| Arsenal           | 71 |
| Manchester United | 62 |
| Tottenham Hotspur | 58 |
| Liverpool         | 48 |
| Southampton       | 54 |
| Swansea           | 46 |

What is the mean number of goals scored by these teams?

[illegible]

**Answer:**

\_\_\_\_\_

2 marks

17) Write the number twelve million, nine hundred and three thousand and thirty four in numerals.

**Answer:**

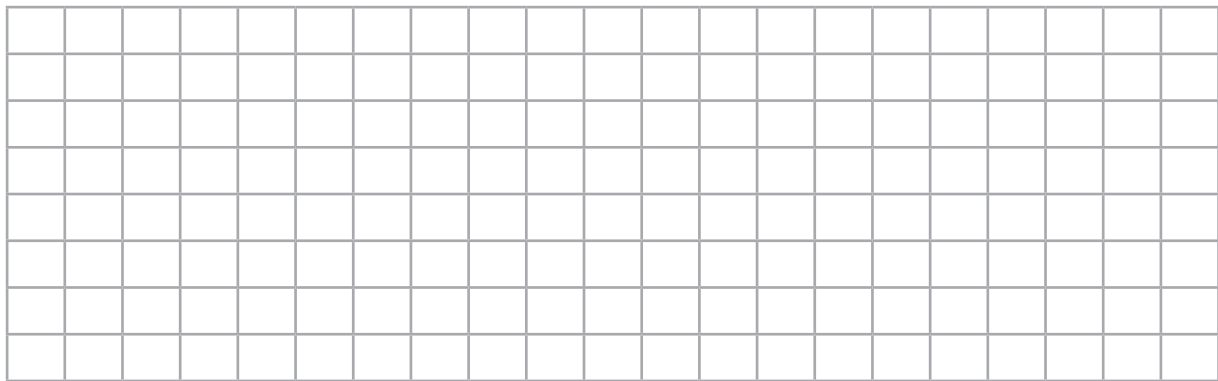
\_\_\_\_\_

1 mark

Total for  
this page

1 mark

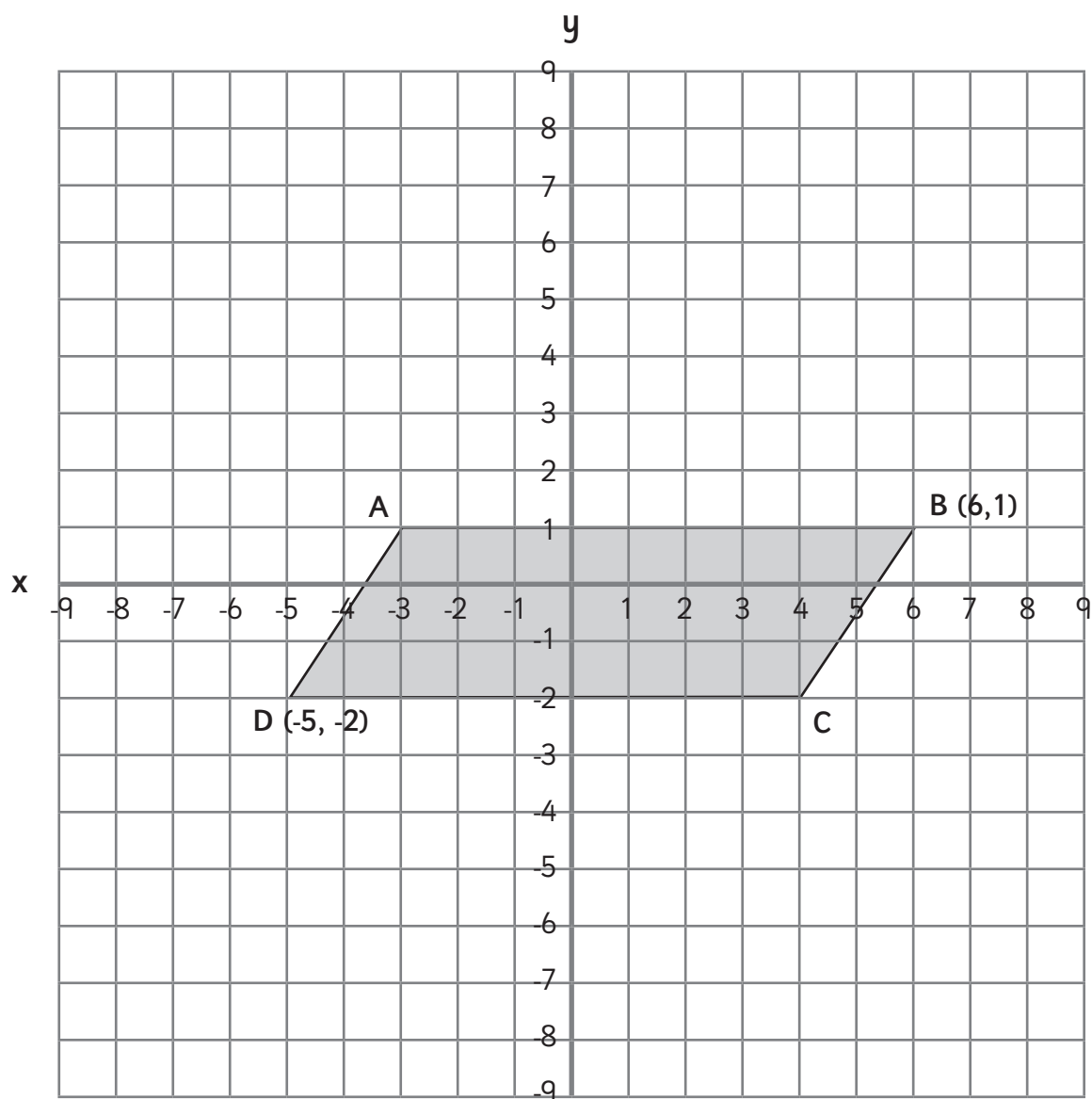
Total for this page



1 mark

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this page

19) A parallelogram is drawn on this grid:



Write the coordinates for corners A and C:

A:

C:

2 marks

[illegible]

| question                     | answer   | marks                    | notes   |                          |                              |  |          |                     |                          |                      |   |  |
|------------------------------|--|--------------------------|---|--------------------------|------------------------------|--|----------|---------------------|--------------------------|----------------------|---|--|
| 1.                           |  |                          |   |                          |                              |  |          |                     |                          |                      |   |  |
|                              | 2.7 $\frac{11}{4}$ $2\frac{4}{5}$  | 1                        |   |                          |                              |  |          |                     |                          |                      |   |  |
| 2.                           |  |                          |   |                          |                              |  |          |                     |                          |                      |   |  |
|                              | 12   | 1                        |   |                          |                              |  |          |                     |                          |                      |   |  |
| 3.                           |  |                          |   |                          |                              |  |          |                     |                          |                      |   |  |
| a                            | $4n+2$   | 1                        |   |                          |                              |  |          |                     |                          |                      |   |  |
| b                            | 42   | 1                        | 1 mark if correct answer based on answer to 3a  |                          |                              |  |          |                     |                          |                      |   |  |
| c                            | $n = 6$  | 1                        |   |                          |                              |  |          |                     |                          |                      |   |  |
| 4.                           |  |                          |   |                          |                              |  |          |                     |                          |                      |   |  |
|                              | Any answer that explains that $\frac{2}{3}$ of £1.15 is 76.6p, which is less than 80p, or 80p is $\frac{2}{3}$ of £1.20 gains 2 marks.   | 2                        | 1 mark for stating $\frac{2}{3}$ of £1.15 is less than 80p but without calculating it as 76.6p. |                          |                              |  |          |                     |                          |                      |   |  |
| 5.                           |  |                          |   |                          |                              |  |          |                     |                          |                      |   |  |
|                              | Hundred thousands<br>Hundredths<br>or 100,000s and 0.01s   | 2                        | 1 mark for one correct.   |                          |                              |  |          |                     |                          |                      |   |  |
| 6.                           |  |                          |   |                          |                              |  |          |                     |                          |                      |   |  |
|                              | MMXVII   | 1                        |   |                          |                              |  |          |                     |                          |                      |   |  |
| 7.                           |  |                          |   |                          |                              |  |          |                     |                          |                      |   |  |
|                              | <table><tr><td></td><td>Has 6 or more vertices</td><td>Has less than 6 vertices</td></tr><tr><td>Has at least one curved face</td><td></td><td>cylinder</td></tr><tr><td>Has no curved faces</td><td>pentagonal prism, cuboid</td><td>square-based pyramid</td></tr></table> |                          | Has 6 or more vertices  | Has less than 6 vertices | Has at least one curved face |  | cylinder | Has no curved faces | pentagonal prism, cuboid | square-based pyramid | 2 | 1 mark for 3 correct and no more than 1 incorrect. |
|                              | Has 6 or more vertices   | Has less than 6 vertices |   |                          |                              |  |          |                     |                          |                      |   |  |
| Has at least one curved face |  | cylinder                 |   |                          |                              |  |          |                     |                          |                      |   |  |
| Has no curved faces          | pentagonal prism, cuboid   | square-based pyramid     |   |                          |                              |  |          |                     |                          |                      |   |  |
| 8.                           |  |                          |   |                          |                              |  |          |                     |                          |                      |   |  |
|                              | 42 blue ball, 28 yellow balls  | 2                        | 1 mark for each correct.  |                          |                              |  |          |                     |                          |                      |   |  |

| question | answer  | marks | notes   |
|----------|---|-------|---|
| 9.       |   |       |   |
|          | 124°  | 1     |   |
| 10.      |   |       |   |
|          | 0.145kg   | 1     | Do not allow 145g.  |
| 11.      |   |       |   |
| a        | 19°C and -7°C   | 2     | 2 marks for both correct. 1 mark if difference is 26°C.                                       |
| 12.      |   |       |   |
| a        | 10 x 4 rectangle  | 1     | 1 mark is awarded for any explanation that shows why the area is not twice the original area. |
| b        | The area is 4x the area of the original.  | 1     |   |
| 13.      |   |       |   |
|          | $\begin{array}{r} 246 \\ 37 \overline{) 9102} \\ \underline{74} \\ 170 \\ \underline{148} \\ 222 \\ \underline{222} \\ 000 \end{array}$ | 2     | 1 mark for 4 correct and 1 incorrect.   |
| 14.      |   |       |   |
|          | 7.92 litres   | 1     | Do not accept 1980 ml or 1 litre 980 ml   |
| 15.      |   |       |   |
| a        | 23:14   | 1     |   |
| b        | 5 minutes   | 1     |   |
| c        | 5 minutes (Coxhoe, Police Station to Bowburn, Garage)   | 1     |   |
| 16.      |   |       |   |
|          | 61.875  | 2     | 1 mark for incorrect answer, but only 1 mistake in calculation.                               |

| question   | answer                    | marks    | notes  |
|------------|---------------------------|----------|--|
| <b>17.</b> |                           |          |  |
|            | 12 903 034                | 1        |  |
| <b>18.</b> |                           |          |  |
|            | 520 - 570                 | 1        |  |
| <b>19.</b> |                           |          |  |
|            | A: (-3, 1) and C: (4, -2) | 2        | 2 marks for both correct answers.<br>Allow any answer where the x coordinates of A and C add to 1 and the y coordinates add to -1.<br>1 mark for having correct x coordinates or y coordinates.                        |
| <b>20.</b> |                           |          |  |
|            | 267 pencils               | 3        | 3 marks for correct answer rounded to 267.<br>2 marks for correct calculation but answer not rounded (267.428571)<br>1 mark for incorrect answer but correct calculation with 1 error. $(26 \times 12 \times 12) / 14$ |
|            |                           | Total 35 |  |