PiXL Diagnostic Assessments

# Year 5
# Mathematics

## Paper 2: Reasoning

Spring

| Name | |
|------|--|
| Class | |

| | out of 35 marks |
|--|------------------|

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# Instructions and Guidance

## Questions and answers

You will have about **40 minutes** to complete this booklet. The adult you are working with will tell you when to stop.

**There are different types of questions in this booklet. Read the instructions for each question carefully**. If you are not sure what to do, ask the adult you are working with.

You may ask an adult to read the question to you if you wish.

You may find it helpful to annotate the booklet. You can use the white spaces around the questions for any working out.

If you want to change an answer, cross it out neatly then make sure that your new answer is clear to read.

If you cannot answer one of the questions, **move on to the next one**. You can always come back to it later.

When you have completed the booklet, **look back and check your answers**.

*Jakub*, *Jamal*, *Meg* and *Zoe* are the names of pupils who appear in some questions.

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# 1.

Jamal writes a number.
His number has 5 ones, 2 tens and 7 hundreds.

Write Jamal's number in digits.

|  |
|--|

# 2.
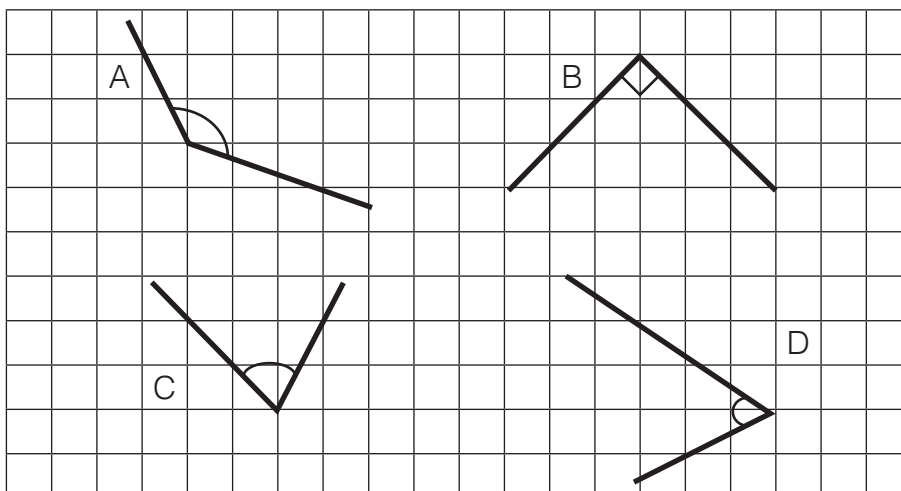
Fill in the missing digits to make this addition correct.

$$
\begin{array}{r}
6\ \square\ 4 \\
+\ \ \ 9\ \square \\
\hline
7\ 0\ 0
\end{array}
$$

# 3.

These angles are drawn on a grid.

**Circle** the obtuse angle.

## 4.

Here are some factor pairs.

**Circle** the pair that is **not** a factor pair of 72.

$$2 \times 36 \qquad 3 \times 24 \qquad 4 \times 17 \qquad 6 \times 12$$

## 5.



A rugby ground can hold 7,835 spectators.

2,580 spectators have seats.

4,194 spectators are standing.

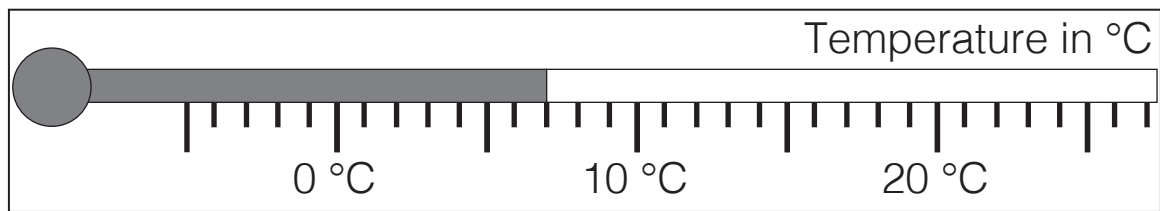**How many more** spectators could fit in to the ground?

Show your working.

spectators

**2 marks**

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## 6.

The temperature shown on this thermometer is 7°C.

Temperature in °C

0 °C          10 °C          20 °C
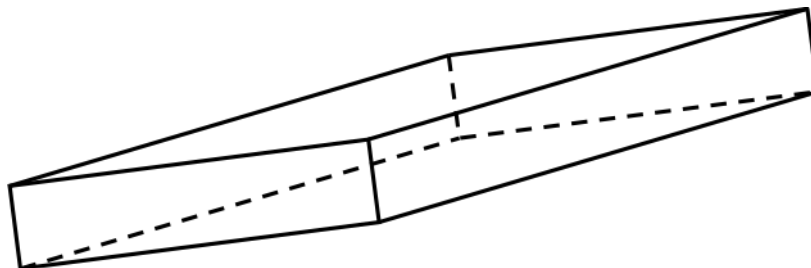
If the temperature falls by 8°C, what will the temperature be?

°C

**1 mark**

## 7.

Jakub is going to the cinema.

He sees that the film lasts 165 minutes.

Change this time to hours and minutes.

| hours | minutes |

**1 mark**

## 8.

**Circle** the name of this shape.

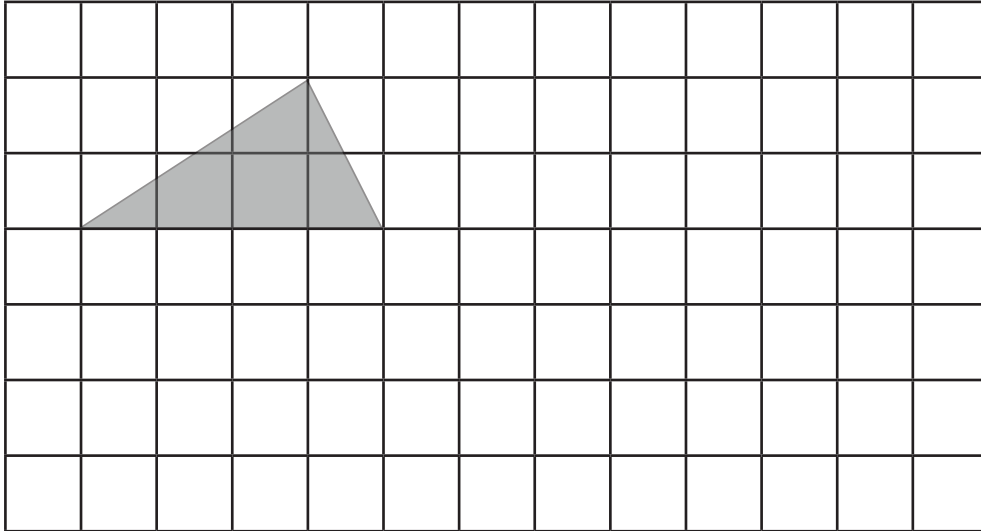cube                    triangular prism

cuboid                  rectangular-based pyramid

**1 mark**

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# 9.

**Translate** the triangle 5 squares right and 2 squares down and draw it in the new position.

Use a ruler.

**2 marks**

# 10.

a) Round 4.92 to the nearest whole number.

**1 mark**

b) Round 3.07 to one decimal place.

**1 mark**

## 11.



9 cans of drink fit into a box.
Jakub fills as few boxes as he can.
Jakub has 800 cans.

How many more cans will Jakub need to fill the last box?

Show
your
working.

**2 marks**

## 12.

$$\frac{1}{4} + \frac{\square}{8} = \frac{7}{8}$$

**Circle** the number missing from this calculation.

8     7     6     5     4

## 13.

| 764 | |
|---|---|
| 457 | ? |

Use the bar model to write an addition and subtraction calculation.

| | + | | = | |
|---|---|---|---|---|

| | - | | = | |
|---|---|---|---|---|

## 14.

Write this Roman numeral in digits.

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# 15.

A curtain maker wants some material for a new order.

Each curtain needs 175cm of material and he needs 4 curtains.

The material costs £20 per metre.

How much will he have to spend?

Show your working.

£

**2 marks**

## 16.

This compound shape is made up of a square (A) and a rectangle (B).

Not to scale.
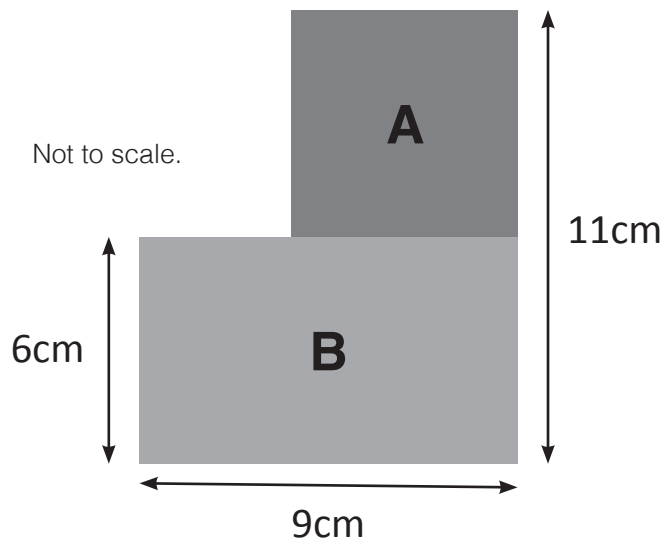


a) What is the area of Shape A?

| cm² |
|---|

b) What is the perimeter of the compound shape?

| cm |
|---|

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## 17.

This is a train timetable.

| Ashton | 16:05 | 16:35 | 16:57 | 17:29 | 18:02 |
|---|---|---|---|---|---|
| Beechcroft | 16:40 | — | 17:32 | — | 18:36 |
| Cedar Valley | 17:08 | 17:30 | 17:56 | 18:25 | 19:01 |
| Dog Wood | 17:27 | 17:48 | 18:19 | 18:48 | 19:24 |
| Elm Croft | 17:46 | 18:03 | 18:38 | 19:09 | 19:44 |

a)  Zoe takes the 17:29 train from Ashton to Elm Croft. How long is the train journey?

_____

**1 mark**

a)  Meg arrives at Beechcroft at five o'clock in the evening.
   She catches the next train to Dog Wood.

   What time should she arrive at Dog Wood?

_____

**1 mark**

## 18.

Zoe adds two prime numbers less than 20 to make a third prime number.
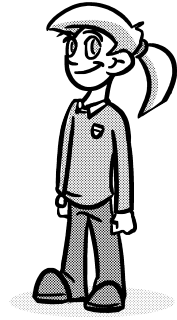
Complete Zoe's addition.

[  ]   +   [  ]   =

_____

**1 mark**

## 19.

Zoe says:

All numbers have an even number of factors.

Explain why Zoe is **not** correct.
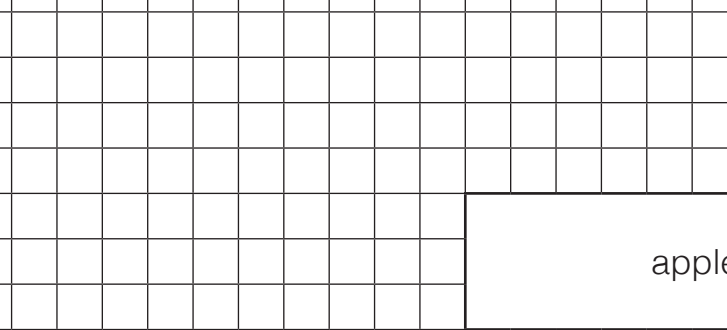
**1 mark**

## 20.

A shop sells apples in bags of 5 or 8.
It has 34 bags of 5 apples and 26 bags of 8 apples for sale.

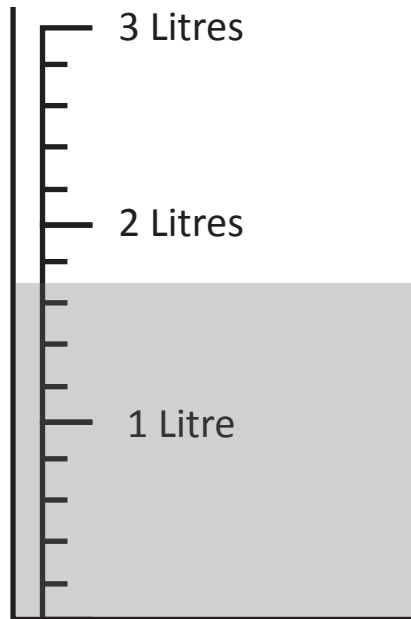How many apples are there altogether?

Show your working.

apples

**2 marks**

## 21.

Meg pours some fruit juice into this container.



— 3 Litres

— 2 Litres

— 1 Litre

a) **Estimate** how much fruit juice is in the container.

| | |
|---|---|
| | mls |

1 mark

b) Meg fills some glasses with fruit juice.
   Each glass can hold 300 ml.
   Meg says:

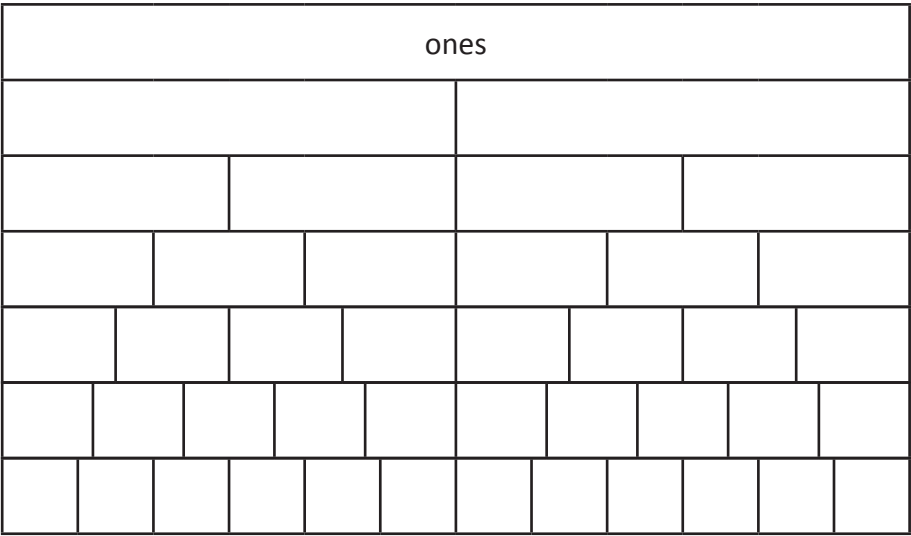> I can fill eight glasses because the fruit juice covers eight divisions on the scale.

Explain why Meg is incorrect.

1 mark

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## 22.

Here is a fraction wall.

| ones | | | | | |
|---|---|---|---|---|---|

halves

quarters

sixths

eighths

tenths

twelfths

Use the fraction wall to match equivalent fractions.

$$\frac{3}{12} \qquad\qquad\qquad \frac{6}{8}$$

$$\frac{5}{10} \qquad\qquad\qquad \frac{4}{6}$$

$$\frac{10}{12} \qquad\qquad\qquad \frac{1}{4}$$

$$\frac{3}{4} \qquad\qquad\qquad \frac{1}{2}$$

$$\frac{8}{12} \qquad\qquad\qquad \frac{5}{6}$$

**2 marks**

## 23.

Jakub scores 12/20 in a mathematics test.
One week later, he scores 21/25 in another mathematics test.

By what **percentage** did Jakub improve his score?

Show your working.

%

**2 marks**

## 24.

$$35 \quad x \quad 12 \quad = \quad 420$$

Use this statement to calculate:

$$35 \quad x \quad 24 \quad =$$

**1 mark**

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Once you have completed the paper, use any spare time to find any answers you may like to improve. Here are some things to look out for:

✓ **Have you followed the instructions accurately?**
✓ **Are your digits clear?**
✓ **Have you used rounding and estimating to check if your answers are reasonable?**
✓ **If a question has more than one step, have you completed all steps?**

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[END OF TEST]