# Cambridge Lower Secondary Checkpoint

CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER

**MATHEMATICS** **1112/02**

Paper 2 **October 2022**

**1 hour**

You must answer on the question paper.

You will need: Geometrical instruments
Tracing paper (optional)

## INSTRUCTIONS

- Answer **all** questions.
- Use a black or dark blue pen. You may use an HB pencil for any diagrams or graphs.
- Write your name, centre number and candidate number in the boxes at the top of the page.
- Write your answer to each question in the space provided.
- Do **not** use an erasable pen or correction fluid.
- Do **not** write on any bar codes.
- You should show all your working in the booklet.
- You may use a calculator.

## INFORMATION

- The total mark for this paper is 50.
- The number of marks for each question or part question is shown in brackets [  ].

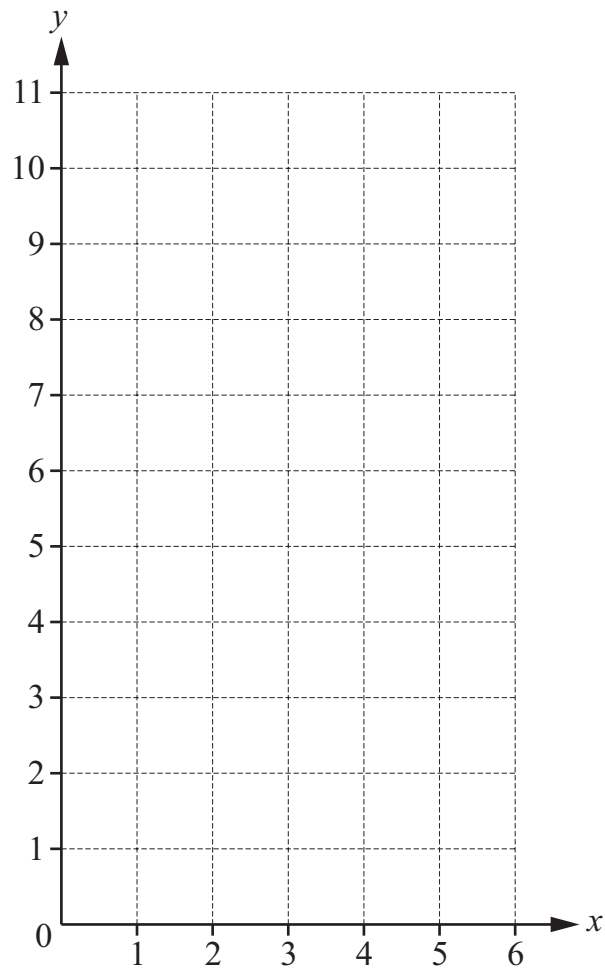This document has **16** pages. Any blank pages are indicated.

**1** **(a)** Complete the table of values for $y = 3x + 1$

| $x$ | 0 | 1 | 2 | 3 |
|-----|---|---|---|----|
| $y$ | 1 |   |   | 10 |

[1]

**(b)** Draw the graph of $y = 3x + 1$ on the grid.



[2]

1112/02/O/N/22   KhanhEdu.com - Dạy Math, Science, English

**2** Work out the missing number in this calculation.

$$6.3 \times \text{................} = 60.9 \times 3$$ [1]

**3** There are 9 girls and 11 boys in a group.

Complete these sentences about the group.

The ratio of girls to boys is ................ : ................

The fraction who are **girls** is ...................................

The percentage who are **boys** is ................................ %

[2]

**4 (a)** Round 10.675 correct to one decimal place.

................................ [1]

**(b)** Round 3.46485 correct to two decimal places.

................................ [1]

**5** Write a **negative** number in each box to make the calculation correct.

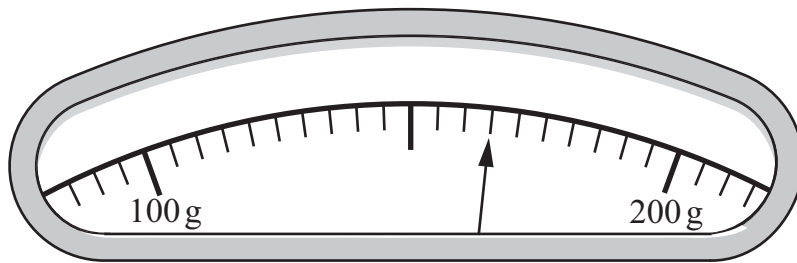$$\boxed{\phantom{0}} \; - \; \boxed{\phantom{0}} \; = \; -5$$

[1]

**6** 211 people go on a trip by bus.
Each bus can take 16 people.

Find the smallest number of buses needed.

.............................................. [1]

**7** Write down the mass shown by the arrow on the diagram.



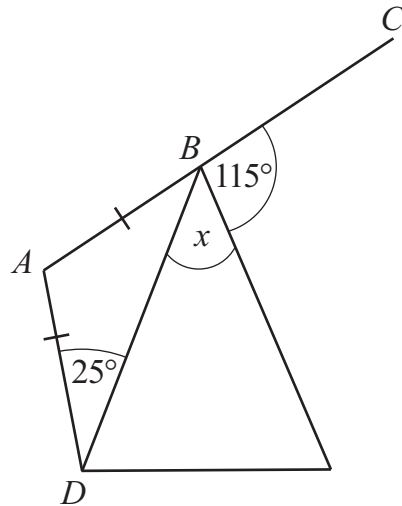.............................................. g   [1]

**8** Carlos writes down a 4-digit number.
The number is a multiple of 3 **and** 5
Two of its digits are square numbers.
Two of its digits are prime numbers.

Complete his number.

| 4 | 9 |  |  |
|---|---|---|---|

[2]

© UCLES 2022                    1112/02/O/N/22

**9**



NOT TO SCALE

*ABC* is a straight line.
Triangle *ABD* is isosceles.

Find angle *x*.

..................................... ° [2]
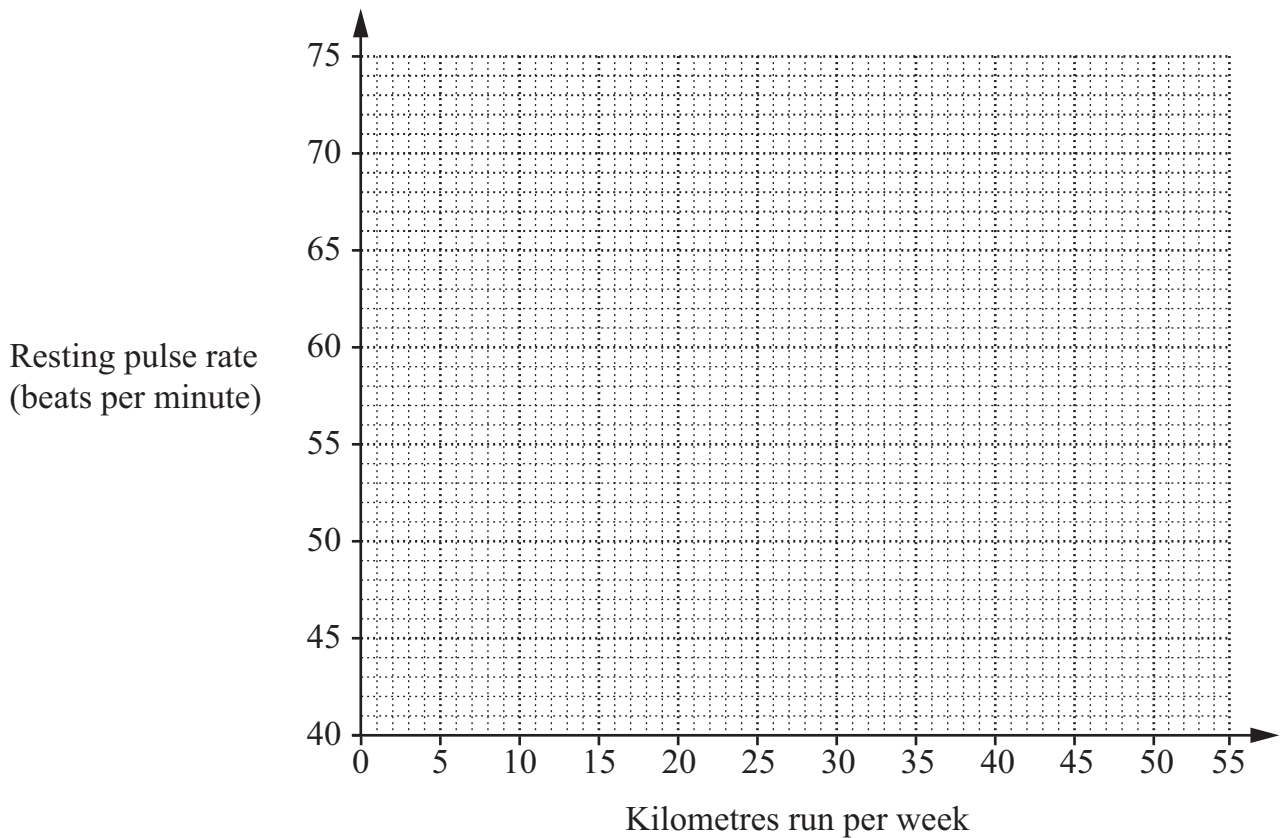
**10** The table shows the resting pulse rate of eight people and how many kilometres they run per week.

| Kilometres run per week | 32 | 25 | 12 | 10 | 50 | 42 | 16 | 30 |
|---|---|---|---|---|---|---|---|---|
| Resting pulse rate (beats per minute) | 60 | 67 | 73 | 69 | 48 | 52 | 64 | 56 |

**(a)** Draw a scatter graph to show this information.



[2]

**(b)** Write down the type of correlation between kilometres run per week and resting pulse rate.

..................................................... [1]

**(c)** Mike runs 14 kilometres per week.

Draw a ring around the most likely resting pulse rate for Mike.
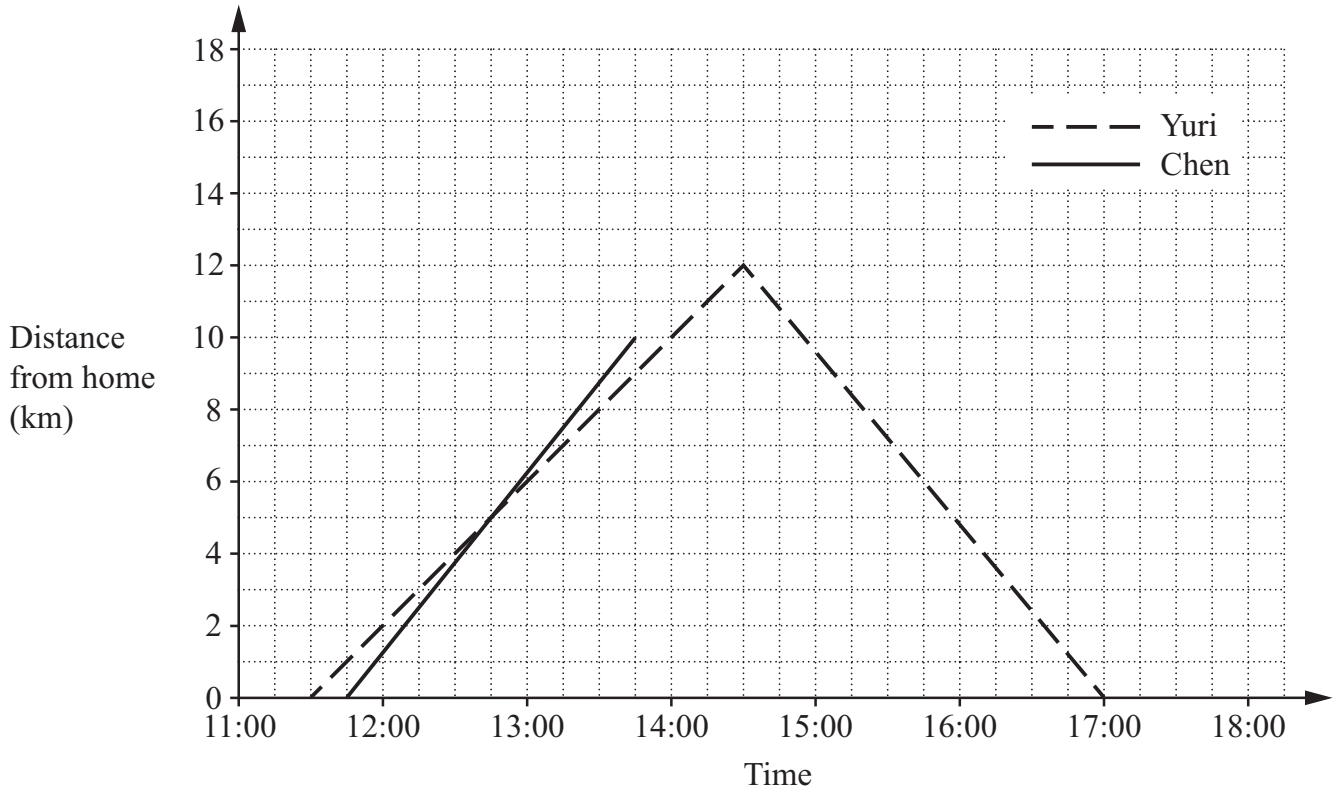
46          57          68          75

[1]

**11** Yuri and Chen live in the same house.

They both go for a walk along the same path and return back home again.
The travel graph shows some information about Yuri's and Chen's walks.



**(a)** Write down the time when Chen passes Yuri.

............................................. [1]

**(b)** Chen does not walk as far as Yuri.

He stops for 30 minutes when he is 10 km from home.
He then walks back home at a constant speed, arriving home 45 minutes before Yuri.

Complete the travel graph for Chen.

[2]

**12** Write $5\dfrac{7}{16}$ as a decimal.

............................................. [1]

**13** The coordinates of point *X* are (–2, 5) and the coordinates of point *Y* are (4, –5).

Find the midpoint of the line *XY*.

( .................... , ..................... ) [2]

**14** Here is part of a recipe.

2 cups of flour

$\frac{3}{4}$ cup of water

**(a)** Write the ratio   amount of flour : amount of water   in its simplest form.

.................. : .................. [1]

**(b)** Naomi makes the recipe using 5 cups of flour.

Find how much water she uses.

.............................................. cups  [2]

**15** In 1975, the population of lions in Africa was 250 000

In 2015, the population of lions in Africa was 30 000

Calculate the percentage decrease in the African lion population between 1975 and 2015

.............................................. %   [2]

**16** Here is a mapping.

$$x \rightarrow (x - 2)^2$$

Write a value in each box to make the mappings correct.
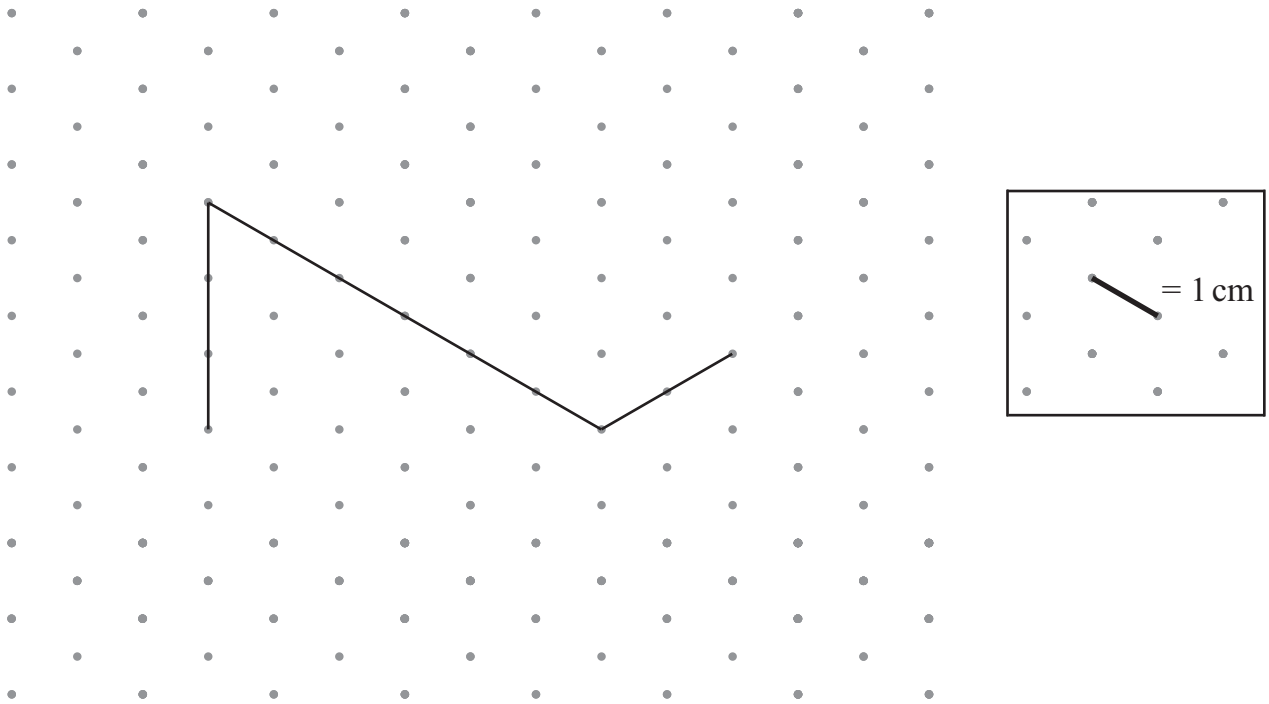The first one has been done for you.

| $x$ | $\rightarrow$ | $(x - 2)^2$ |
|---|---|---|
| 4 | $\rightarrow$ | 4 |
| 6 | $\rightarrow$ | |
| | $\rightarrow$ | 64 |

[2]

**17** The edges of a cuboid are 2 cm, 3 cm and 6 cm.

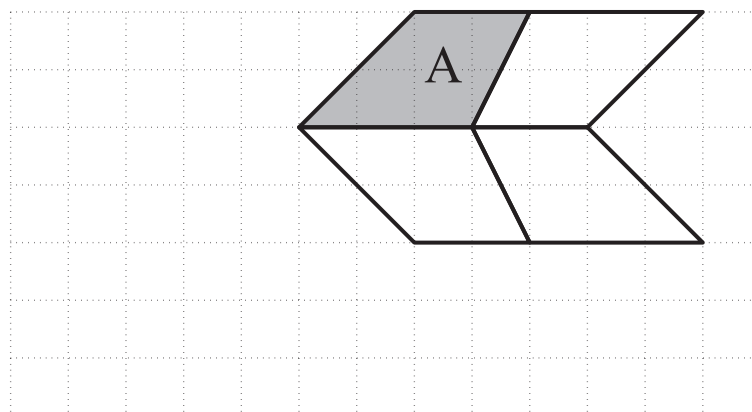This is part of a drawing of the cuboid on isometric paper.



= 1 cm

Complete the drawing of the cuboid.

[1]

**18** A pattern is made by tessellating shape A on the grid.

Draw shape A **three more** times to continue the tessellation.



[1]

 KhanhEdu.com - Day Math, Science, English

**19** Five students take part in a swimming race.

The probabilities of some of the students winning the race are given in the table.

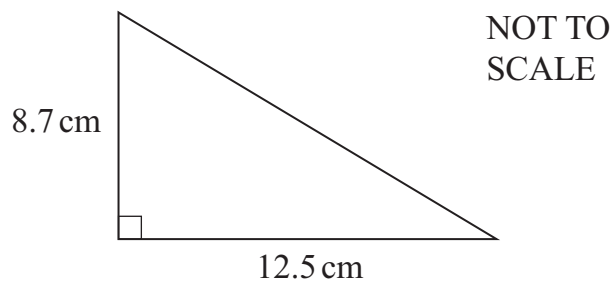| Name | Anastasia | Mia | Eva | Angelique | Jamila |
|---|---|---|---|---|---|
| **Probability of winning** | 0.15 | 0.25 | 0.2 | | |

Angelique is three times as likely as Jamila to win the race.
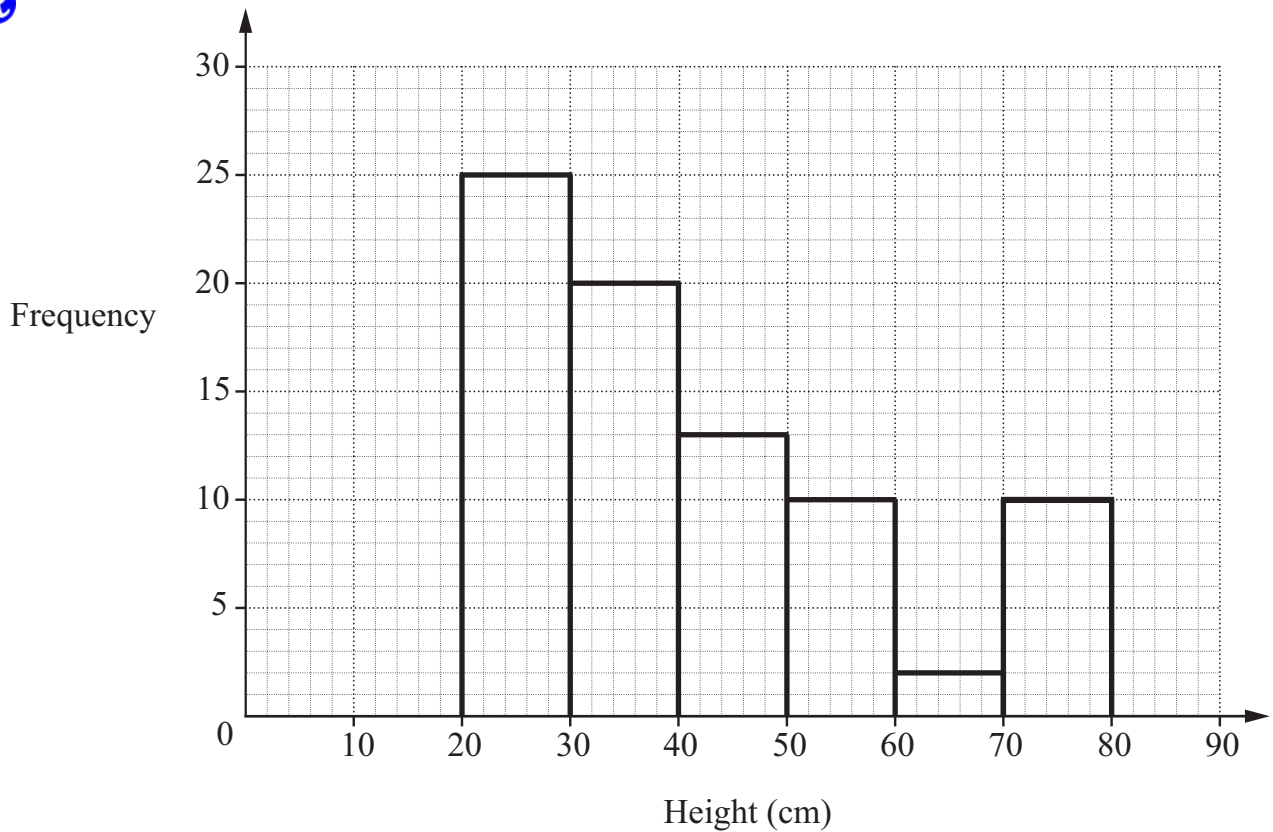
Use this information to complete the table.

[2]

**20** Here is a right-angled triangle.



8.7 cm

12.5 cm

NOT TO SCALE

Calculate the length of the hypotenuse.

......................................... cm [2]

**21** This chart shows information about the heights of 80 plants.



The mean height is 41.9 cm.

Tick (✓) the correct statement.

The median height and the mean height are the same. ☐

The median height is more than the mean height. ☐
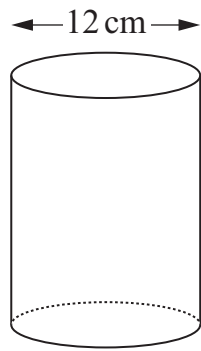
The median height is less than the mean height. ☐

You cannot tell if the median height is less than, more than or the same as the mean height. ☐

[1]

**22** Here is a cylinder.



NOT TO
SCALE

**(a)** The diameter of the top of the cylinder is 12 cm.

Calculate the area of the top of the cylinder.
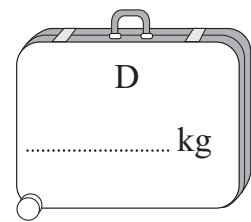
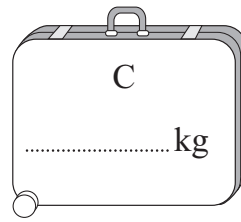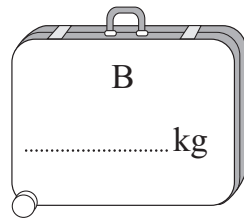............................................... cm$^2$ [2]

**(b)** The volume of the cylinder is 1700 cm$^3$.

Calculate the height of the cylinder.

............................................... cm [1]

**23** Rajiv takes four suitcases on holiday.

| A | B | C | D |
| --- | --- | --- | --- |
| $x$ kg | ........................ kg | ........................ kg | ........................ kg |
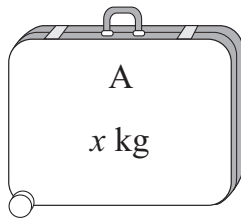
Suitcase A has mass $x$ kg.
Suitcase B has a mass that is 6 kg **less** than suitcase A.
Suitcase C has a mass that is twice the mass of suitcase B.

The total mass of all four suitcases is $(6x - 20)$ kg.

Find an expression, in terms of $x$, for the mass of suitcase D.
Give your answer in its simplest form.

........................................ kg   [3]

**24** Flour is sold in 25 kg sacks.

A loaf of bread is made using 400 grams of flour.
A baker makes 64 loaves of bread a day.
The baker wants to order enough flour to last him for 20 days.

Calculate the minimum number of sacks he should order.

................................................ [3]

**25** Here are four properties of a square.

| Property A | Property B | Property C | Property D |
|---|---|---|---|
| Four equal sides | Diagonals intersect at right angles | Four lines of symmetry | Two pairs of parallel sides |

Another type of quadrilateral always has property B but has **none** of the other three properties.

Write down the name of this quadrilateral.

................................................ [1]

**26** A teacher gives this question to her class.

<div style="border:1px solid black;text-align:center">

Work out $0.3^2$

</div>

Pierre says that the answer is 0.9

Explain why Pierre is wrong **without** working out the exact answer.

.......................................................................................................................................................................

............................................................................................................................................................ [1]

 KhanhEdu.com - Dạy Math, Science, English