55 minutes

Mathematics Paper 2

Stage 8

Name ………………………………………………………………………….

Additional materials: Ruler
Calculator
Tracing paper
Geometrical instruments

READ THESE INSTRUCTIONS FIRST

Answer **all** questions in the spaces provided on the question paper.

You should show all your working on the question paper.

The number of marks is given in brackets [ ] at the end of each question or part question.

The total number of marks for this paper is 45.

For Teacher's Use	
Page	Mark
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
Total	

V1

1 Write these numbers in order starting with the smallest.

$$1.5 \qquad 1.39 \qquad 1.070 \qquad 1.3 \qquad 1.24$$

.... [1]
smallest   largest

2 Write the number 3.7452 correct to 2 decimal places.

.... [1]

3 Hussein says that the lowest common multiple of 6 and 4 is the same as the highest common factor of 36 and 24

Is Hussein correct?   Yes/No
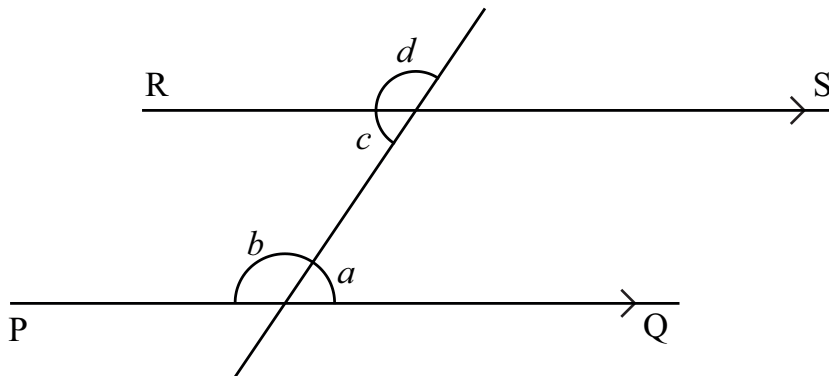Explain your answer.

Because ....

.... [2]

4 A biased dice is thrown.
The probability that it will land on a 6 is 0.8

What is the probability that it will not land on a 6?

.... [1]

5 Look at the diagram.

Lines PQ and RS are parallel.

Choose from these words to complete the sentences.

opposite   alternate   supplementary   corresponding   complementary

(a) Angles *b* and *d* are .... [1]

(b) Angles *a* and *c* are .... [1]

6 $44 is shared between David, Jo and Mary in the ratio 2 : 3 : 5

How much does each receive?

David $ ....

Jo $ ....

Mary $ .... [2]

4

7 **(a)** Pens cost 36 cents each.
Pencils cost 12 cents each.

(i) Write an expression for the cost of *y* pens.

.... cents   [1]

(ii) Complete the formula for working out the total cost (C) of *y* pens and *z* pencils.
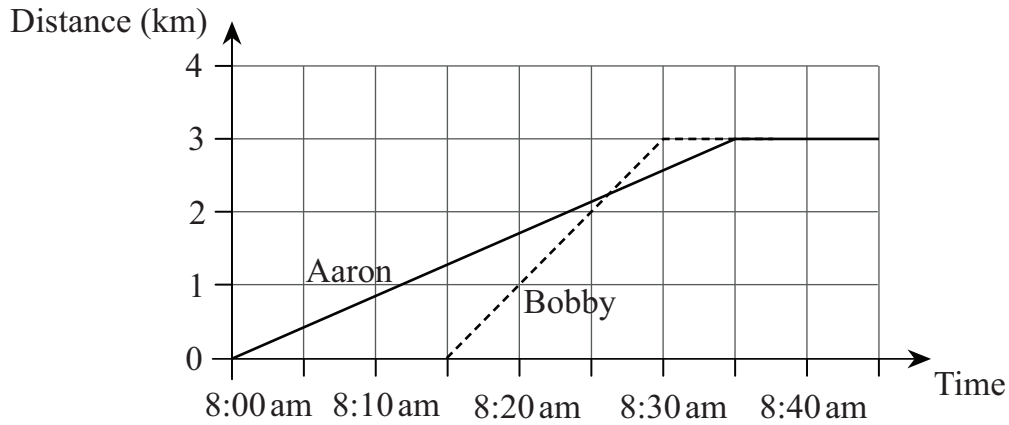
C = ... cents   [1]

(b) The formula for the total cost (C) of *q* rulers and *s* erasers is $C = 40q + 15s$

Work out the total cost of 7 rulers and 4 erasers.

.... cents   [1]

8   Aaron and Bobby are brothers.
    They go to the same school.
    Aaron leaves home at 8:00 am and walks to school.
    Bobby leaves home at 8:15 am and cycles to school.
    Bobby arrives at 8:30 am.
    The graph shows their journeys.

(a) At what time did Aaron arrive at school?

.... [1]

(b) How far is the school from the brothers' home?

.... km [1]

(c) At what time does Bobby pass Aaron?

.... [1]

9 **(a)** Complete the table of values for $y = 2x - 3$

x	−1	0	1	2	3
y		−3		1	

[1]

(b) Plot the points on the grid and draw the line $y = 2x - 3$
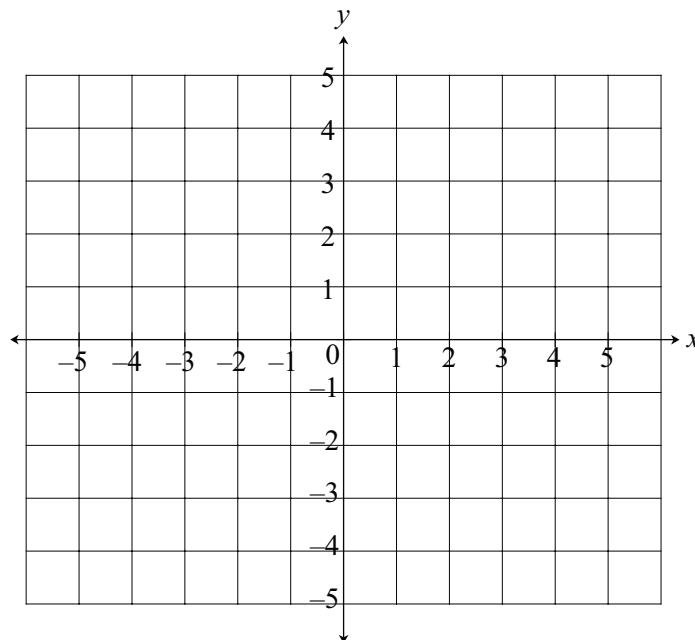
[1]

(c) Is the point with coordinates (15, 29) on the line $y = 2x - 3$?
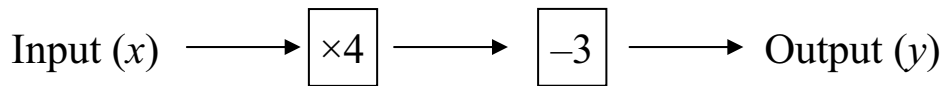Explain your answer.

Yes/No because ....

.... [1]

10 Write 6600 as a product of its prime factors.

.... [2]

11 A mapping multiplies the input by 4 and then subtracts 3
When the input is x the output is y.

Input (x) $\longrightarrow$ $\boxed{\times 4}$ $\longrightarrow$ $\boxed{-3}$ $\longrightarrow$ Output (y)

(a) Write an expression for y using x.

$y =$ .... [1]

(b) Work out the value of x when $y = 31$

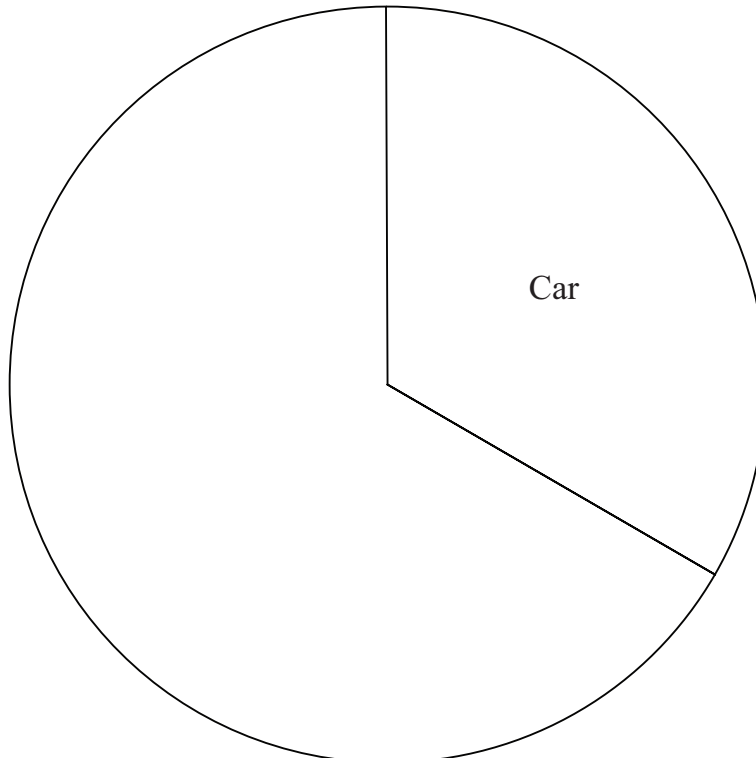$x =$ .... [1]

12 The table shows how the students in a class travel to school.
A pie chart can be drawn to show this information.

(a) Complete the table to show the angles needed in a pie chart.

Method of travel	Frequency	Angle in pie chart
Car	10	120˚
Walk	9	
Bus	8	
Cycle	3	36˚
Total	30	

[1]

(b) Complete and label the pie chart.

Car

[2]

13 Calculate $\dfrac{3}{8}$ of 27

Give your answer as a fraction.

.... [1]

14 Here are five calculations.

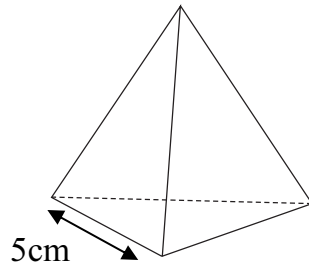$$\boxed{56 \div 3} \quad \boxed{170 \div 9} \quad \boxed{113 \div 6} \quad \boxed{131 \div 7} \quad \boxed{93 \div 5}$$

Tick (✓) the **two** calculations that give the same answer when rounded to 1 decimal place.

[1]

15 A regular tetrahedron has edges of length 5 cm.

Use a ruler and a pair of compasses to accurately draw its net.

NOT TO
SCALE

5cm

[2]

16 A new car costs $14 000
Every year it loses 18% of its value.
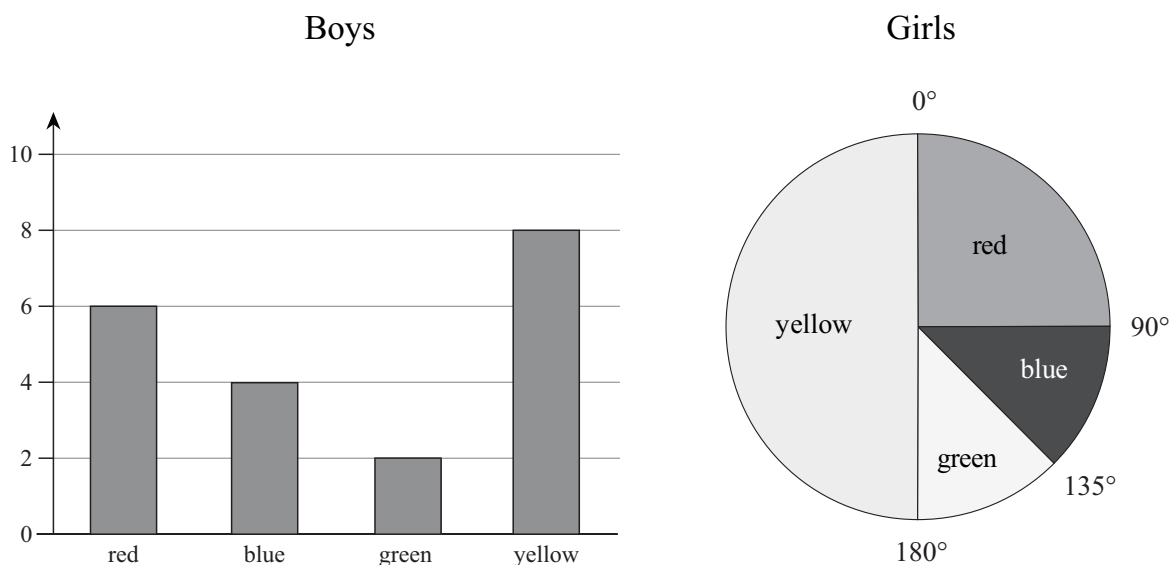
How much is the car worth after 2 years?

$ .... [2]

17 Sally says $\dfrac{3}{4} < \dfrac{2}{3}$

Explain why Sally is wrong.

....

.... [1]

18 Some students were asked to choose their favourite colour from red, blue, green and yellow.
The bar chart and pie chart show the results.

Boys

Girls

The same number of both boys and girls chose green.

(a) How many girls were asked altogether?

.... girls   [1]

(b) Victor says that yellow is **equally popular** with boys and girls.

Explain why Victor is wrong.

....

.... [2]

         [Turn over

19 Calculate.

$$\frac{8.51 + 7.3}{6.9 - 3.8}$$

.... [1]

20 Write terms in the boxes so that the statements are correct.

(a) $5a - \boxed{} + \boxed{} - 4b = 2a - 2b$ [1]

(b) $\boxed{} - 4y + 7x - 3y = 10x - \boxed{}$ [1]

21 Tick (✓) the fractions that are equal to a recurring decimal.

$$\frac{2}{9} \qquad \frac{5}{8} \qquad \frac{4}{11} \qquad \frac{7}{20} \qquad \frac{14}{33}$$

[1]

22 Look at these shapes.

11cm

A

5cm

3cm

B

h cm

6cm
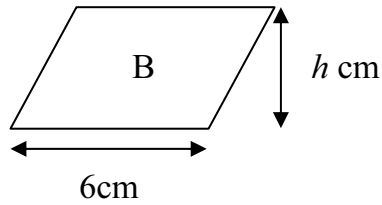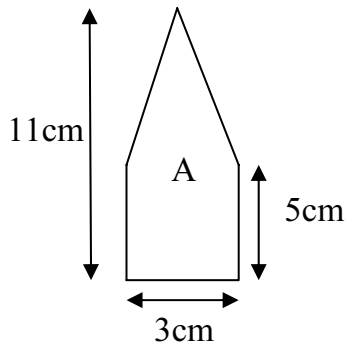
NOT TO SCALE

(a) Work out the area of shape A.

.... cm² [1]

(b) Parallelogram B has the same area as shape A.

Work out the height *h* of parallelogram B.

.... cm [1]

23 Cola is sold in cans and bottles.
A 330 ml can of cola costs 55 cents.
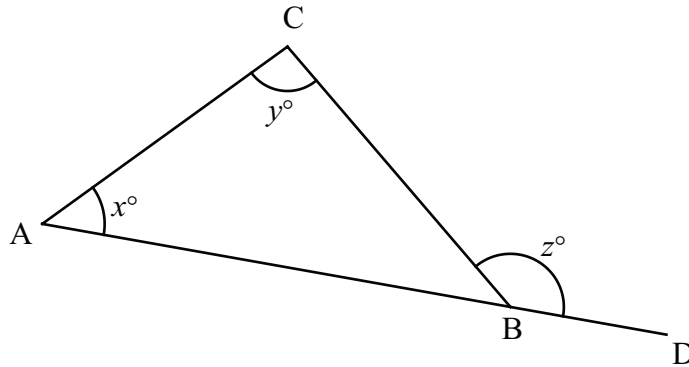A 500 ml bottle of cola costs 85 cents.
Which is better value?

Explain your answer.

Can / Bottle   because   ....

.... [2]

24 Look at the diagram.

ABD is a straight line.

Prove that $z° = x° + y°$

....

....

....

.... [2]