Cambridge Secondary 1 Checkpoint

Cambridge International Examinations
Cambridge Secondary 1 Checkpoint

CANDIDATE NAME **SOLVED BY SMART EXAM RESOURCES**

CENTRE NUMBER | | | | | |

CANDIDATE NUMBER | | | | |

9469978289

MATHEMATICS

Paper 1

1112/01

October 2015

1 hour

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Candidates answer on the Question Paper.

Additional Materials: Geometrical instruments
Tracing paper (optional)

READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name on all the work you hand in.
Write in dark blue or black pen.
You may use an HB pencil for any diagrams, graphs or rough working.
Do not use staples, paper clips, glue or correction fluid.

DO NOT WRITE IN ANY BARCODES.

Answer all questions.
NO CALCULATOR ALLOWED.

You should show all your working in the booklet.
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 50.

This document consists of 14 printed pages and 2 blank pages.

1 The timetable shows the times of five buses.

	1	2	3	4	5
Oldfield	16 00	16 20	16 35	16 50	17 05
Newton	16 21	16 41	16 56	17 11	17 26
Arden	16 39	16 51	17 14	17 21	17 44
Wiley	16 57	17 17	17 32	17 47	18 02

(a) Write down the time when the second of these buses leaves Newton.

4.41pm [1]

(b) Karl arrives at the bus stop in Arden at 16 55
Work out how long he waits for the next bus.

Note: The earliest bus after 16:55 is at 17:14
There are 19 minutes between these two times

19 [1]

2 Jerome has 6 number cards.

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49	51	53	55	57	59

(a) Which two of Jerome's numbers are prime numbers?

Note: A prime number is a number that has only two factors; namely 1 and itself

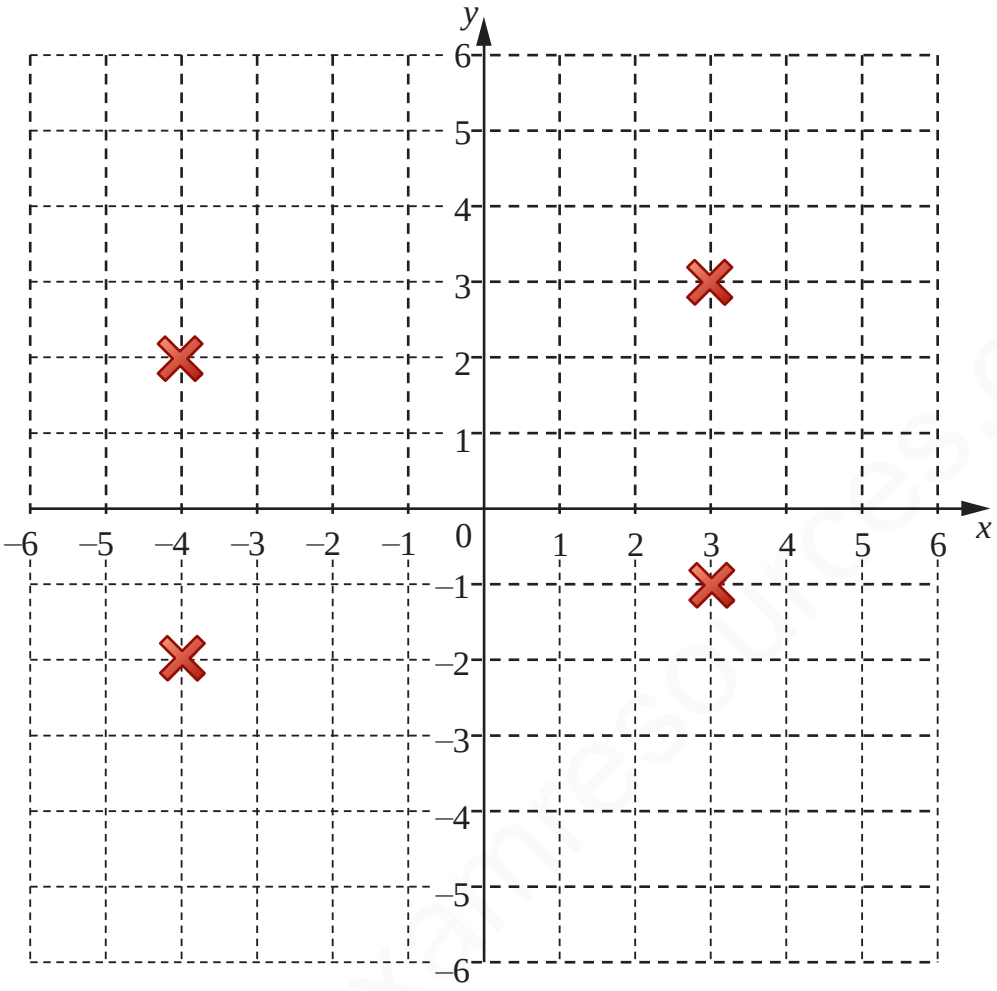
53 and 59 [1]

(b) Explain why 51 is not a prime number.

This is because 51 can be divided by 3

[1]

3 (a) Plot points A (3, –1), B (3, 3) and C (–4, 2).



[1]

(b) $ABCD$ is a parallelogram.

Write down the coordinates of point D.

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D (-4 , -2) [1]

Note:1)Other possible option could have been (-4,6)
2) Remember the opposite sites of a parallelogram are parallel and equal.

4 Put a ring around all the fractions that are equivalent to 0.35

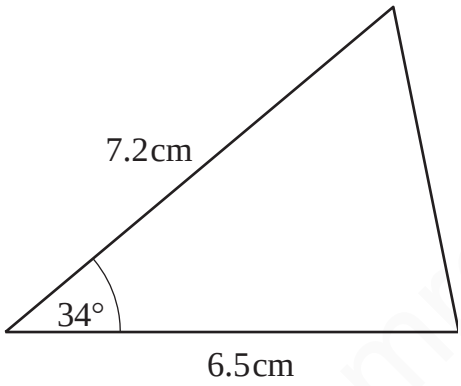
$\frac{3}{5}$ $\frac{7}{20}$ $\frac{1}{3}$

$\frac{35}{100}$ $\frac{35}{10}$ $\frac{1}{35}$

These can be checked by doing the actual divisions

[2]

5 The diagram shows a sketch of a triangle.



NOT TO SCALE

Draw this triangle accurately in the space below.
One line has been drawn for you.

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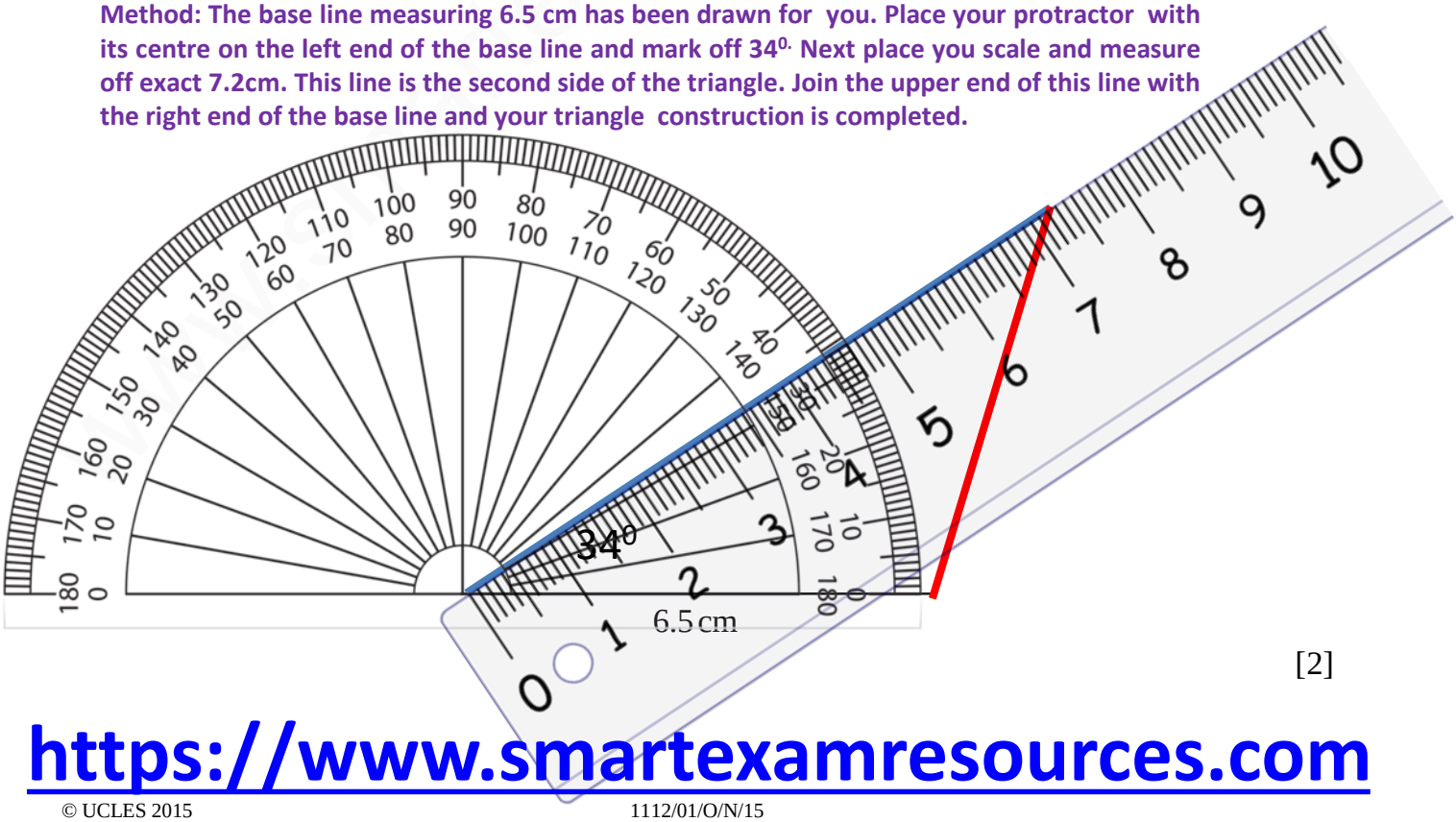
Method: The base line measuring 6.5 cm has been drawn for you. Place your protractor with its centre on the left end of the base line and mark off 34^0. Next place you scale and measure off exact 7.2cm. This line is the second side of the triangle. Join the upper end of this line with the right end of the base line and your triangle construction is completed.



[2]

6 (a) Work out 18.6×7

$$18.6 \times 7 = \frac{186}{10} \times 7 = \frac{186 \times 7}{10} = \frac{1302}{10} = 130.2$$

130.2 [1]

(b) Work out $177 \div 20$

Give your answer as a mixed number.

$$\frac{177}{20} = 8\frac{17}{20}$$

20) 177 (8
-160
17

$8\frac{17}{20}$ [1]

7 Sarah draws a pie chart to show the time she spends on different activities one day.

Here is the table she uses.

Activity	sleep	school	travel	eat	play
Hours	12	5	1	2	
Pie chart angle	180°	75^0	15^0	30°	60°

Complete the table.

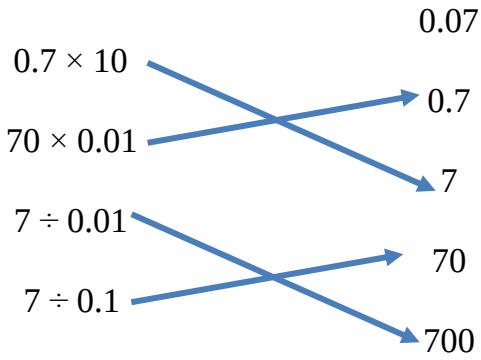
[1]

WORKING

12 hours $=180^0$
5 hours $= x$
$12x = 180 \times 5$
$X = \frac{180 \times 5}{12} = 75$

12 hours $=180^0$
1 hours $= x$
$12x = 180$
$X = \frac{180}{12} = 15$

8 Draw a line to match each calculation to its answer.



[2]

9 Here is a formula.

$$a = 2b - c$$

Find the value of a when

(a) $b = 11$ and $c = 3$

a=2b-c
a=2(11)-3=22-3=19

19 [1]

(b) $b = 12$ and $c =$

a=2b-c
a=2(12)-(-4
=24+4=28

28 [1]

10 A boy spends $\frac{1}{4}$ of his money on sweets and $\frac{1}{3}$ on computer games.

What fraction of his money does he not spend?

Let the total amount =1

Therefore total amount he spends= $\frac{1}{4}(1) + \frac{1}{3}(1) = \frac{7}{12}$

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Hence the amount he does not spend =1-$\frac{7}{12} = \frac{12-7}{12} = \frac{5}{12}$

$\frac{5}{12}$ [1]

11 Here is a list of eight commonly used units.

mm cm m km cm^2 m^2 cm^3 m^3

Choose from the list the most suitable unit to complete each of the following sentences.

The height of a flag pole is measured in ..... m .....

The volume of water in a swimming pool is measured in ..... m^3 .....

The area of a football pitch is measured in ..... m^2 .....

The amount your fingernail grows in length in one month is measured in ..... mm .....

[2]

12 (a) Express each of these functions using symbols.
The first one has been done for you.

In words	In symbols
Subtract 5	$x \rightarrow$ ..... $x - 5$ .....
Divide by 7	$x \rightarrow$ ..... $\frac{x}{7}$ .....
Multiply by 2 and then add 1	$x \rightarrow$ ..... 2x+1 .....

[1]

(b) Another function is given by

$x \rightarrow 4(x + 3)$

Fill in the gaps to express this function in words.

..... 3 ..... and then ..... Multiply by 4 ..... [1]

13 Usain runs 5 km in 30 minutes.

How many minutes does it take him to run 8 km at the same speed?

5km → 30 minutes
8km → x minutes
5x=3 x 80
$x-=\frac{8 \times 30}{5}=48$

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..... 48 ..... minutes [2]

14 Write down the *n*th term for the following sequences.

(a) 4, 8, 12, 16, 20…

4 8 12 16 20
+4 +4 +4 +4

The first difference is constant , hence it is a linear sequence and it's nth term is given by a +(n-1)d
=4+(n-1)4=4+4n-4=4n

..... 4n ..... [1]

(b) 7, 10, 13, 16, 19…

7 10 13 16 19
+3 +3 +3 +3

The first difference is constant , hence it is a linear sequence and it's nth term is given by a +(n-1)d
=7+(n-1)3=7+3n-3=4+3n

..... 4n ..... [2]

15 A teacher wrote this sum on the board.

$$\$9.61 + \$0.39 + \$2.71 + \$5.28 + \$7.29 + \$4.72$$

She said,

Explain how to do this.

There are three pairs that each add up to 10

..... [1]

16 Work out

$$\frac{9}{4} \div \frac{3}{10}$$

Give your answer as a fraction in its simplest form.

$$\frac{3}{4} \div \frac{9}{10} = \frac{3}{4} \times \frac{10}{9} = \frac{5}{12}$$

$\frac{5}{12}$ [2]

17 Solve the equation.

$3(3 - 2x) = 2x - 11$

$3(3-2x)=2x-11$

$9-6x=2x-11$

$9+11=2x+6x$

$20=8x$

$X=20\div 8 =2.5$

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$x =$ 2.5 [3]

18 Write down the whole number that is the best estimate for

(a) $\sqrt{124}$

$\sqrt{124} = \sqrt{2 \times 62} = \sqrt{2 \times 2 \times 31} =$
$2\sqrt{31} = 2 \times 5.57 = 11.14$

11 [1]

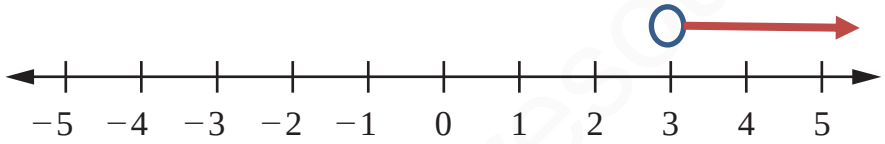
(b) $\sqrt[3]{124}$

$\sqrt[3]{124} = 4.98$

Solved by Smart Exam Resources

5 [1]

19 Show the inequality $x > 3$ on the number line.



[1]

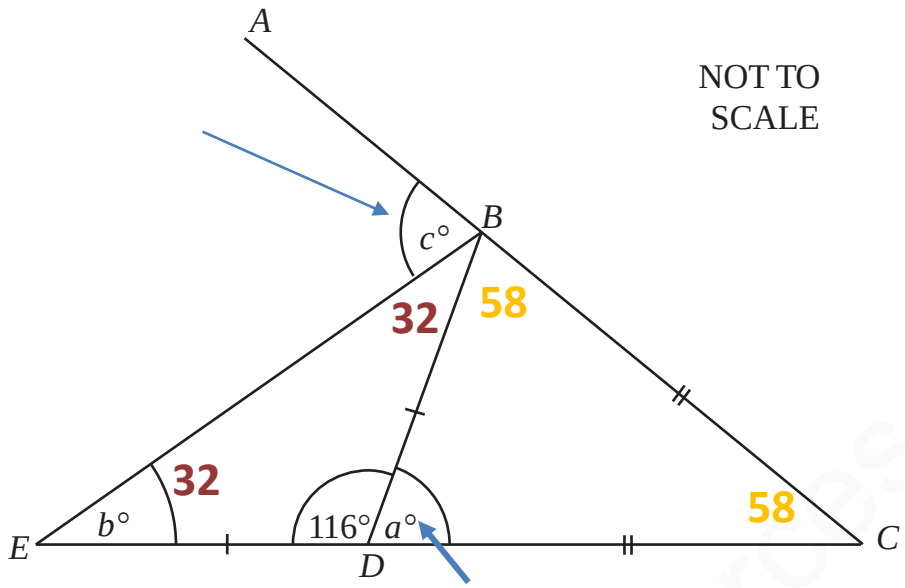
20 One US dollar is equivalent to 7.76 Hong Kong dollars.

Work out how many Hong Kong dollars are equivalent to 500 US dollars.

1USD =7.76 HK Dollar
500 USD = x HK dollar
X=7.76× 500 = 3880

3880 Hong Kong dollars [1]

21 The diagram shows two straight lines, *ABC* and *EDC*.



BC = *DC*
DB = *DE*
Angle *EDB* = 116°

Work out the values of *a*, *b* and *c*. Type equation here.

b+b+116=180 **[Isosceles triangles have equal base angles]**
2b=180-116
b=64/2=32
180-116=64 [Linear pair]

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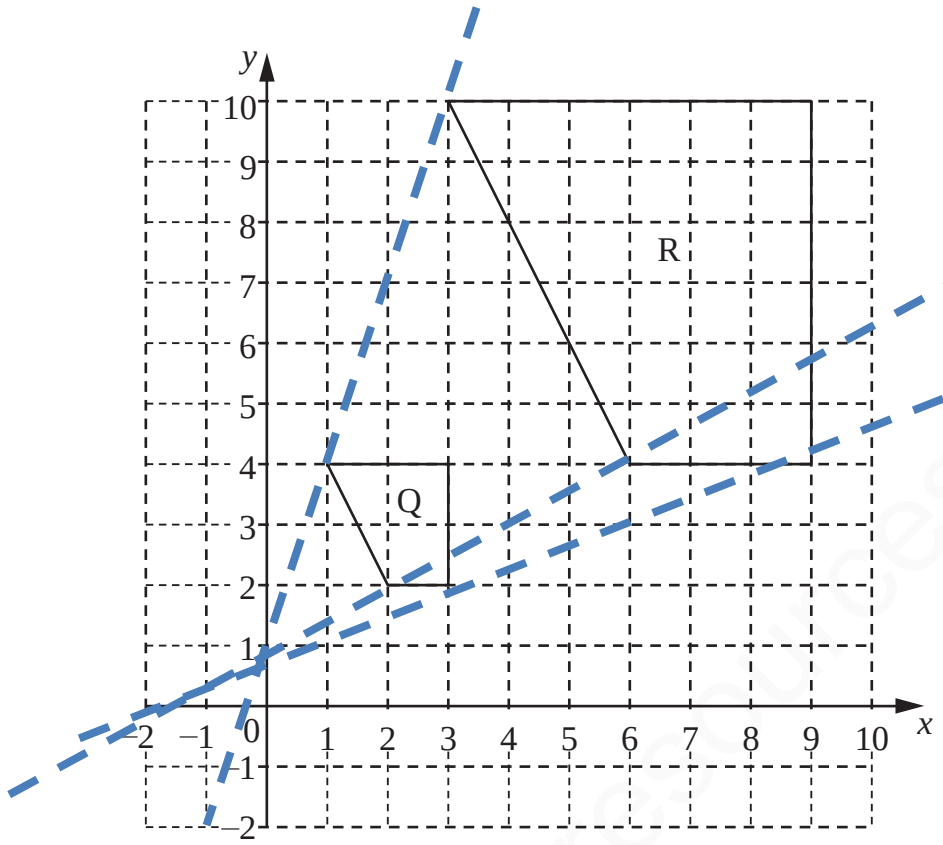
In △DBC,
2∠B+64=180 [Base angles of an isosceles triangle are equal]
B=$\frac{180-64}{2}=\frac{116}{2}$ =58
C=180-(32+58)=84 [Linear pair]

a = **64**
b = **32**
c = **84**

[3]

22 The diagram shows two quadrilaterals, Q and R, on a grid.



Describe fully the transformation that maps quadrilateral Q onto quadrilateral R.

Enlargement by a scale factor 3, centre (0,1)
[Note: The point of intersection is the point of enlargement [2]

23 Work out

$$7.2 \div 0.15$$

$$\frac{72}{10} \div \frac{15}{100} = \frac{72}{10} \times \frac{100}{15} = 48$$

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48 ..... [1]

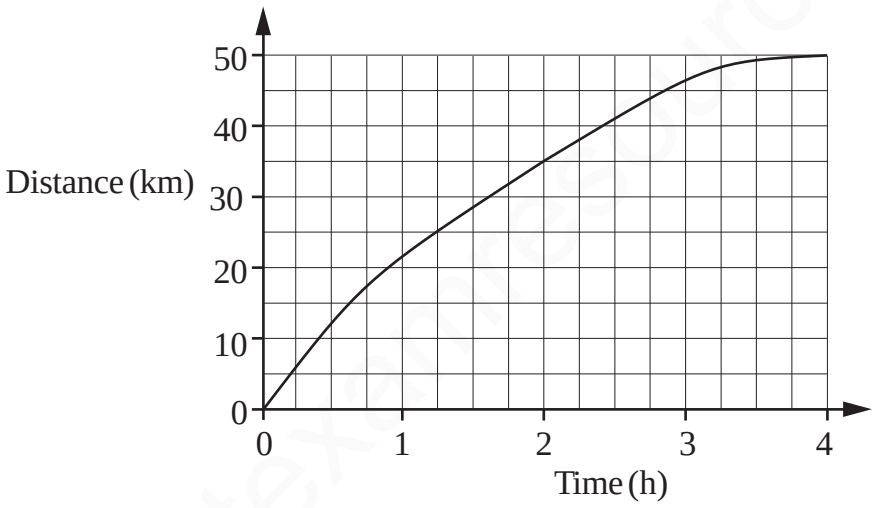
24 Nesreen wants to find out how often people in her town visit the cinema.
She collects data from 10 people standing in a queue outside a cinema.

Write down two reasons why the data she collects may not be reliable.

Reason 1 10 is not enough people

Reason 2 She should also ask people not waiting at the cinema [2]

25 A girl goes on a bike ride for four hours.
The graph shows her journey.



Find her average speed for the whole journey.

Average speed $= \frac{Total\ distance}{Total\ time} = \frac{50}{4} = 12.5$

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12.5kmph [2]

26 Syed has a six-sided dice.
His dice is numbered 1, 2, 3, 4, 5 and 6
He throws the dice 300 times.

Syed gets a 'five' 90 times.

Work out the relative frequency of throwing a 'five'.

$$\textit{Relative frequency} = \frac{\textit{Number of successful trials}}{\textit{Total number of trials}}$$

$\frac{90}{300}$ ..... [1]

27 x and y are positive numbers.

Here are some statements.

A	B	C	D
$x \times y > 0$	$x \times y < x$	$x \div y < y$	$x \div y < 0$

Note: You can get these answers by actually substituting any ositive numbers in place of x and y

Write the letter of each statement in the correct column in the table to show whether it is

Always true or Sometimes true or Never true

The first one has been put in for you.

Always true	Sometimes true	Never true
A	**B** **C**	**D**

[2]