



THIRD SPACE
LEARNING

Year 9 Maths Test Questions

KS3 Maths

Year 9 Maths Test KS3 Maths

Name

Total marks



Paper length: 1hr

Instructions

- Use black ink or ball-point pen.
- Answer all questions.
- Answer the questions in the spaces provided
- You must show all your working.
- Diagrams are NOT accurately drawn, unless otherwise indicated.
- Calculators may be used.

Information

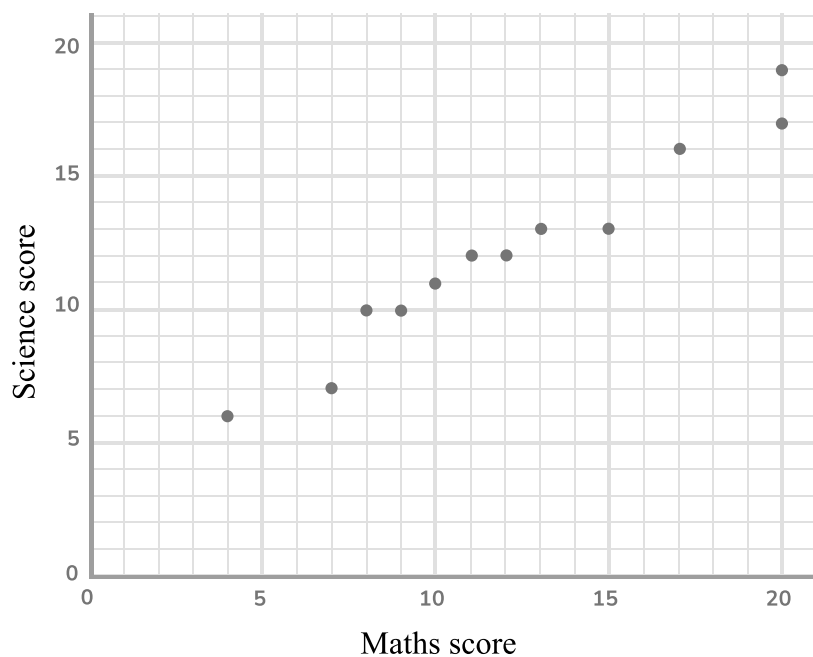
- The total mark for this paper is 50
- The marks for each question are shown in brackets
 - use this as a guide as to how much time to spend on each question.

Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

You must have: Ruler graduated in centimetres and millimetres, pen, HB pencil, eraser.

- 1 The scatter diagram shows the maths test results and science test results of 12 students.



- (a) Describe the correlation.

(1 mark)

- (b) Draw a line of best fit.

(1 mark)

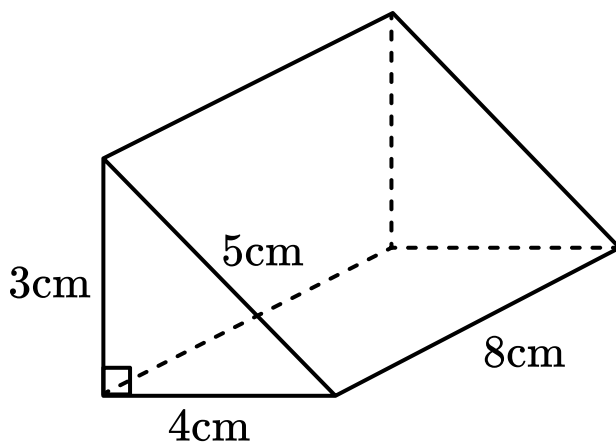
- 2 (a) Write a prime number that is more than 20 and less than 30.

(1 mark)

- (b) Find the highest common factor of 24 and 56.

(2 marks)

- 3 Here is a triangular prism



Work out the volume of the triangular prism.
Include units in your answer.

(3 marks)

- 4 Neil plants apple trees and pear trees in the ratio 5:2.
Neil plants 20 apple trees.
How many pear trees does Neil plant?

----- pear trees

(2 marks)

- 5 (a) Circle the meaning of the expression p^2 .

multiply p by 2add 2 to p multiply p by itselfhalve p **(1 mark)**

- (b) Here is an equation.

$$p^2 + 5 = 21$$

- (i) Use it to work out the value of $p^2 + 8$

(1 mark)

- (ii) Use it to work out the value of $2p^2 + 10$

(1 mark)

6 Look at these statements.

In each box, write $<$, $>$ or $=$ to make the statement correct.

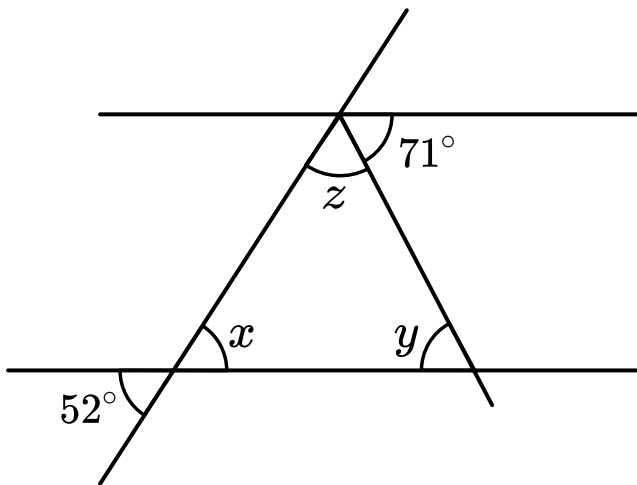
(a) $\frac{16}{5}$ $3\frac{1}{4}$

(1 mark)

(b) $\frac{4}{7}$ of 28 2^4

(1 mark)

7 Look at the diagram.



Complete these statements:

Angle $x =$ _____ $^\circ$ because _____

Angle $y =$ _____ $^\circ$ because _____

Angle $z =$ _____ $^\circ$ because _____

(3 marks)

8 Two formulae that can be used to calculate velocity (speed) are:

$$v = u + at$$

$$v^2 = u^2 + 2as$$

For both formulae,

u = initial velocity

v = final velocity

a = acceleration

s = distance

t = time

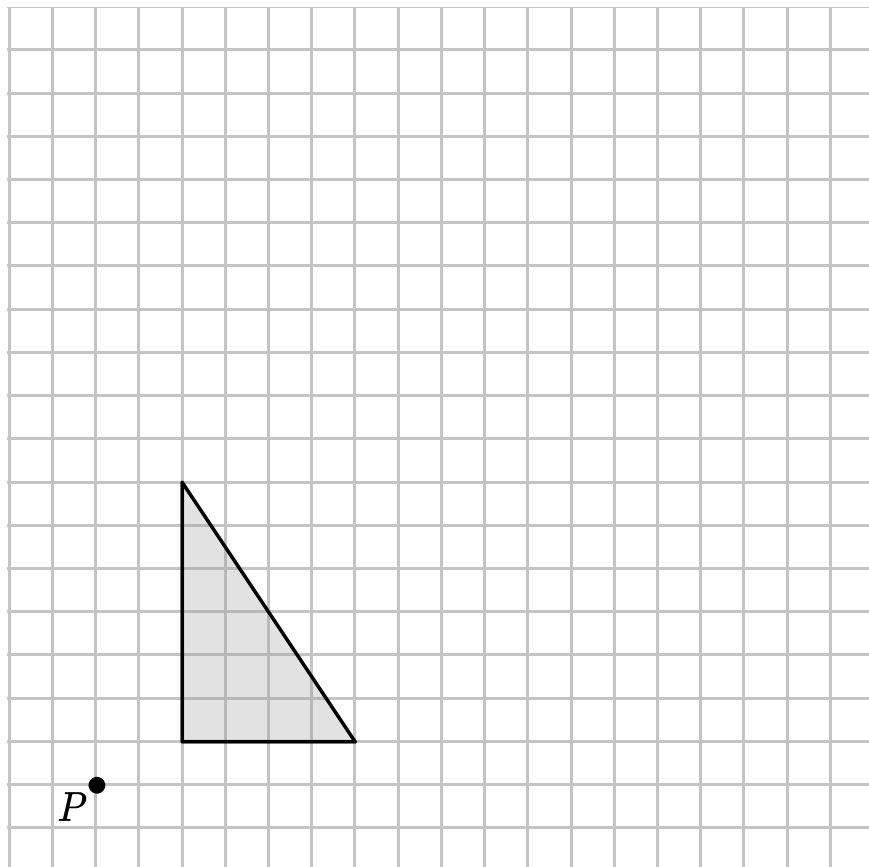
Use these formulae to work out s when $u = 2$, $a = 1$ and $t = 8$.

$s =$ _____
(2 marks)

- 9 Look at the triangle drawn on a square grid.

Draw an enlargement of this rectangle with scale factor 3.

Use point P as the centre of enlargement.



(2 marks)

- 10 Factorise the following expressions

(a) $15x - 20$

(1 mark)

(b) $2y^2 + 7y$

(1 mark)

- 11 Jodie is on holiday in America. She visits a restaurant.

Here is a section of the menu:

Mains	
Pizza	\$14.50
Burger	\$12.50
Desserts	
Ice cream	\$4.50
Brownie	\$6

Here is the same section of the menu from the same restaurant in the UK:

Mains	
Pizza	£12.50
Burger	£11.50
Desserts	
Ice cream	£4.20
Brownie	£4.60

The exchange rate is $\text{£}1 = \$1.19$.

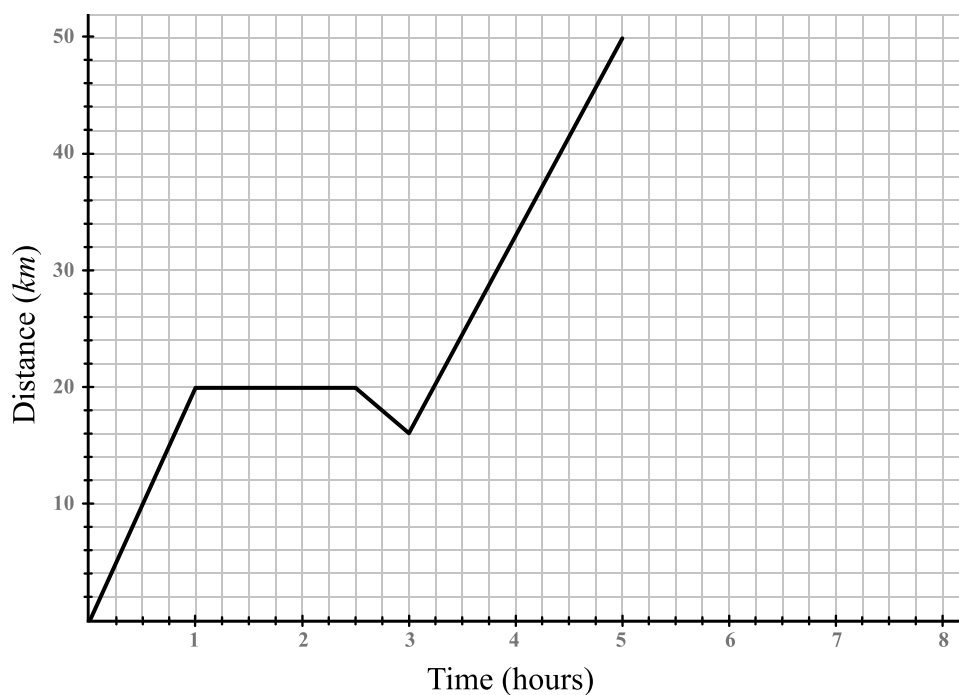
Jodie chooses pizza and ice cream for her meal.

Is the cost of Jodie's meal more or less in America than in the UK.

You must show how you decide.

(2 marks)

12 Here is a distance time graph showing Harry's distance from his house.



(a) Complete the following statements:

(i) From 1 hour to 2 hours 30 minutes Harry was

(ii) From 2 hours 30 minutes to 3 hours Harry was

(2 marks)

(b) Work out the speed at which Harry was travelling for the final part of his journey.

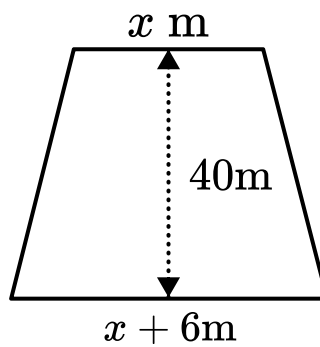
----- km/h
(2 marks)

- 13 The price of fuel increases from £1.50 per litre to £1.68 per litre.
Calculate the percentage increase.

%

(2 marks)

- 14 (a) Here is a trapezium.



The area of the trapezium must be less than $1000m^2$.

Show that $40x + 120 < 1000$.

(3 marks)

- (b) Solve the inequality $40x + 120 < 1000$

(2 marks)

- 15** Here is some information about the number of siblings that a group of people have.

Number of siblings	Frequency
0	3
1	8
2	3
3	2

- (a)** Work out the mean number of siblings.

(2 marks)

- (b)** The mean number of siblings of another group of 24 people is 1.75.

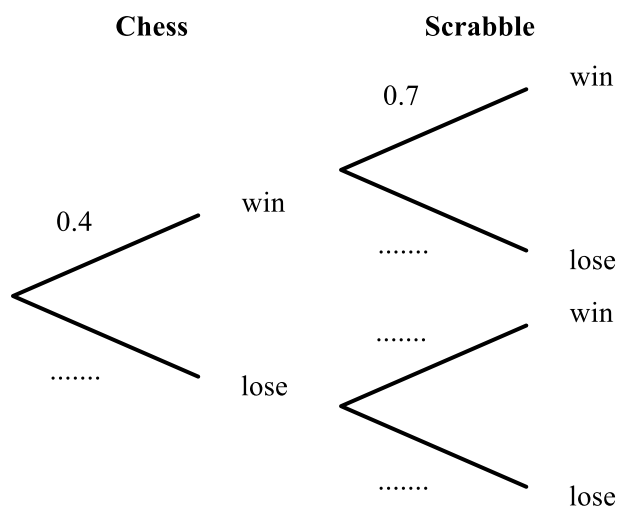
Work out the mean when the data for both groups is combined.

(3 marks)

- 16** The probability that Nia wins a game of chess is 0.4.
The probability that Nia wins a game of scrabble is 0.7.

Nia plays one game of chess and one game of scrabble.

- (a)** Complete the probability tree diagram.



(2 marks)

- (b)** Work out the probability that Nia wins both games.

(1 mark)

17 A is the point $(-2, 5)$ and B is the point $(3, 17)$.

(a) Find the midpoint of the line AB.

(2 marks)

(b) Find the length of the line AB.

(2 marks)

18 Factorise the following expressions

$$7 \times 10^0, \quad 2.1 \times 10^2, \quad 6.3 \times 10^3, \quad 1.89 \times 10^5, \quad \dots$$

(a) Write down the term to term rule for this sequence.

(1 mark)

(b) Work out the next term in the sequence.

Give your answer in standard form and as an ordinary number.

Standard form: -----

Ordinary number: -----

(2 marks)

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