Step Up Maths Practice Paper GCSE (9–1) Mathematics Higher Paper 1

(Non-Calculator) Time: 1 hour 30 minutes Total Marks: 80

ANSWER ALL QUESTIONS

1. Here is a list of numbers.

3 6 6 8 9

Work out the range of these numbers.

(Total for Question 1 is 1 mark)

1. Work out $243 \div 9$

(Total for Question 1 is 1 mark)

2. Simplify $7y \times 3y$

(Total for Question 2 is 1 mark)

3. Write $\frac{3}{4}$ as a decimal.

(Total for Question 3 is 1 mark)

4. Work out 30% of 280.

(Total for Question 4 is 1 mark)

5. Round 38.753 to 2 decimal places.

(Total for Question 5 is 1 mark)

6. There are 1500 millilitres of water in a jug.
James pours 725 millilitres into a bowl.
Work out how much water is left in the jug.
Give your answer in litres.

(Total for Question 6 is 3 marks)

7. Sophie is drawing a scale model.
The scale is 1:25
The length of a wall in the model is 12 cm.
What is the actual length of the wall?
Give your answer in metres.

(Total for Question 7 is 3 marks)

8. Mrs. Wilson's class took a test. Here are their results:

12, 15, 7, 9, 11, 8, 12, 13, 15, 7, 9, 10, 11, 14, 8, 9, 10, 12, 13, 14

(a) Complete the frequency table.

Mark	**Tally**	**Frequency**
7		
8		
9		
10		
11		
12		
13		
14		
15		

(b) Work out the range of the test scores.

(c) Work out the mean test score.

(Total for Question 8 is 5 marks)

9. In a bag, there are some red balls, some blue balls and some green balls.
The ratio of red balls to blue balls to green balls is 2:3:5
There are 30 balls in the bag.

(a) How many red balls are in the bag?

(b) A ball is taken at random from the bag.
Write down the probability that the ball is

(i) green

(ii) not blue

(Total for Question 9 is 4 marks)

10. Here are the ingredients needed to make 24 cookies.

Ingredients for 24 cookies:

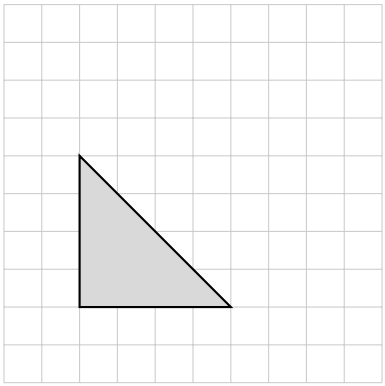
- 250g butter
- 300g sugar
- 400g flour
- 2 eggs

(a) Lisa wants to make 36 cookies.
Work out how much butter she needs.

(b) Lisa has 700g of flour.
What is the maximum number of cookies she can make?

(Total for Question 10 is 4 marks)

11.



On the grid, draw an enlargement of the triangle with a scale factor of 3.
Use (0,0) as the centre of enlargement.

(Total for Question 11 is 3 marks)

12. $y = 4x - 7$

(a) Work out the value of y when $x = 3$

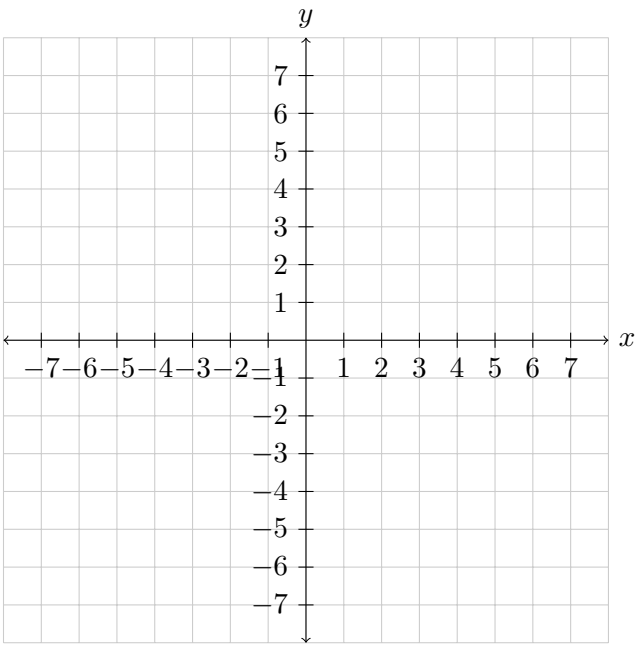
(b) Work out the value of x when $y = 13$

(Total for Question 12 is 3 marks)

13. A cinema sells adult tickets and child tickets.
Adult tickets cost £9.50
Child tickets cost £6.75
On Monday, the cinema sold 240 tickets in total.
The total money taken was £1964.25
Work out how many adult tickets were sold.

(Total for Question 13 is 4 marks)

14. On the grid, draw the graph of $y = 2x + 1$ for values of x from -3 to 3.



(Total for Question 14 is 3 marks)

15. Tom buys a car for £8500.
The value of the car depreciates by 15% each year.
Work out the value of the car after 2 years.

(Total for Question 15 is 4 marks)

16. James takes a science test with 65 questions.
He needs to get at least 70% correct to pass.
He gets 48 questions correct.
Has James passed the test? Show your working.

(Total for Question 16 is 3 marks)

17. Calculate $\frac{3}{8} \div \frac{1}{6}$
Give your answer as a mixed number in its simplest form.

(Total for Question 17 is 3 marks)

18. Work out 3.45×6.2

(Total for Question 18 is 3 marks)

19. (a) Write down the value of 7^0

(b) Work out the value of 3^{-2}

(c) Write $\frac{2^6 \times 2^2}{2^3}$ in the form 2^n where n is an integer.

(Total for Question 19 is 4 marks)

20. (a) Write 84 as a product of its prime factors.

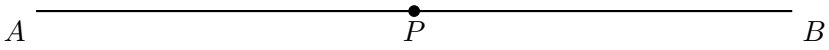
(b) Find the highest common factor (HCF) of 84 and 126.

(Total for Question 20 is 4 marks)

21. The mean height of 8 plants is 24.5 cm.
A new plant with a height of 32 cm is added to the group.
Work out the mean height of all 9 plants.

(Total for Question 21 is 3 marks)

22. The point P lies on the line AB.
Use ruler and compasses to construct an angle of 60° at P.
You must show all your construction lines.



(Total for Question 22 is 2 marks)

23. The diagram shows a right-angled triangle XYZ.

$XY = 8$ cm
$XZ = 6$ cm
p is the angle XYZ.
q is the angle XZY.
$p : q = 5 : 1$
Work out the value of p.

(Total for Question 23 is 4 marks)

24. A box contains x blue pens.
A second box contains $(3x - 2)$ red pens.
A third box contains $(2x + 5)$ black pens.
There are 52 pens in total.
Each pen weighs 15 grams.
The total weight of the pens in the second box is 720 grams.
Work out the total weight of the pens in the first box.

(Total for Question 24 is 5 marks)

25. A cube has a volume of 125 cm^3.
Calculate the total surface area of the cube.

(Total for Question 25 is 3 marks)

26. Work out an estimate for $\frac{19.8 \times 4.1}{0.51}$

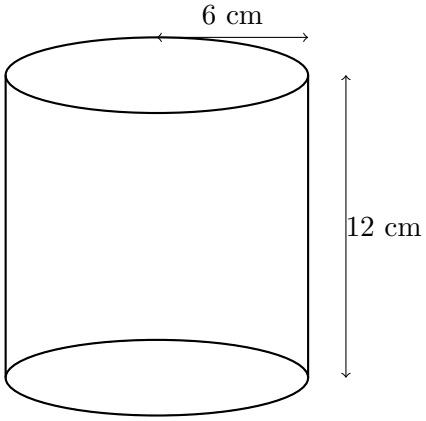
(Total for Question 26 is 3 marks)

27. (a) Expand and simplify $(3x - 2)(x + 4)$

(b) Factorise $x^2 - 16$

(Total for Question 27 is 4 marks)

28. A cylinder has radius 6 cm and height 12 cm.
Calculate the volume of the cylinder.
Give your answer in terms of π.



(Total for Question 28 is 3 marks)

TOTAL FOR PAPER IS 80 MARKS