

Year 9 Spring Assessment

Calculator

Mathematics

Name _____

Date _____

Teacher _____

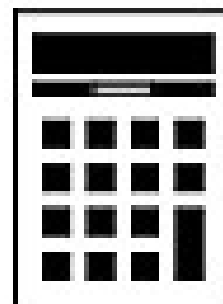
Time allowed 55 minutes

The maximum mark for this paper is **50**



Instructions

- Use a black or blue pen
- Calculator allowed
- Draw diagrams in pencil
- Answer all questions
- You must answer the questions in the spaces provided
- Do all rough work in this booklet
- Cross through any work you do not want to be marked
- You must keep working until the end of the 55 minutes



Information

- The results of this assessment will be reported back to parents/carers.

Q1.

Simplify fully $d \times d$

Answer _____

(Total 1 mark)

Q2.

Circle the value of the digit 7 in 9.17

$\frac{1}{70}$

$\frac{1}{7}$

$\frac{7}{10}$

$\frac{7}{100}$

(Total 1 mark)

Q3.

Circle the letter of the shape that has **exactly one** line of symmetry.

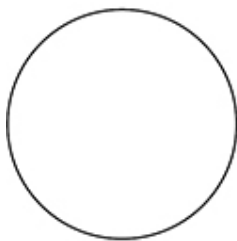
P



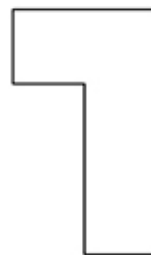
Q



R



S



(Total 1 mark)

Q4.

Fay tries to solve $x^2 = 100$

She says,

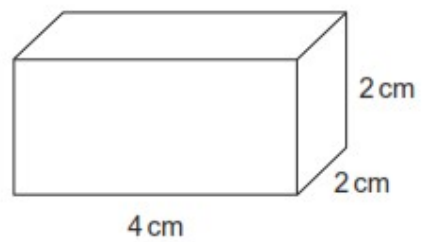
“The only possible value of x is 10”

Give a reason why she is **not** correct.

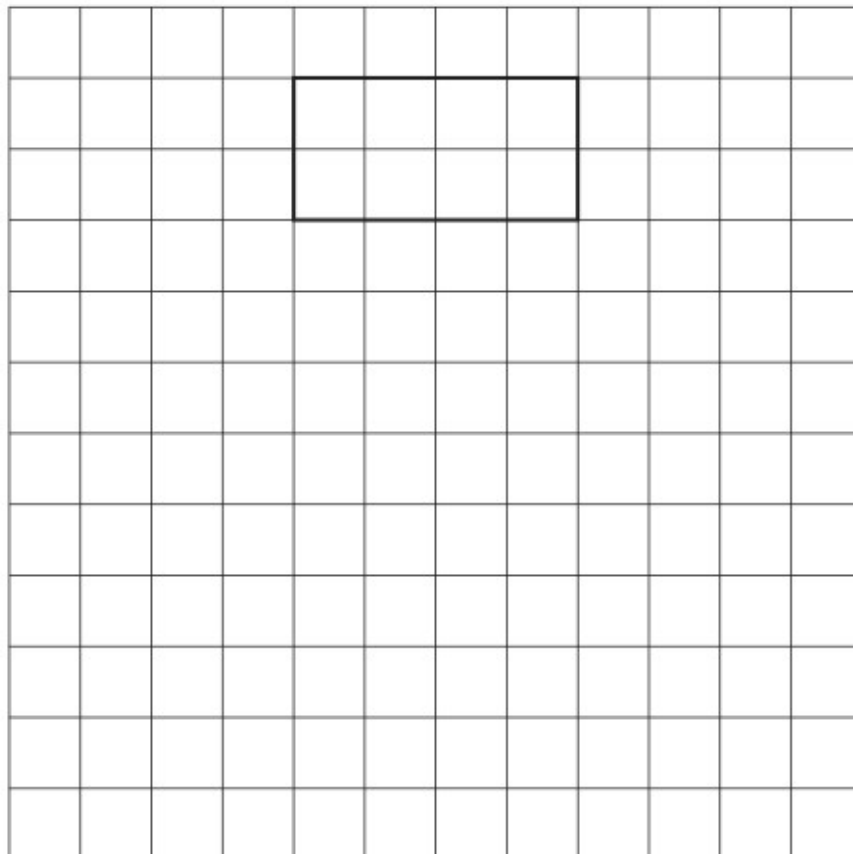
(Total 1 mark)

Q5.

The diagram shows a cuboid.



On the centimetre grid, complete a possible net for the cuboid.
One face has been drawn for you.



(Total 3 marks)

Q6.

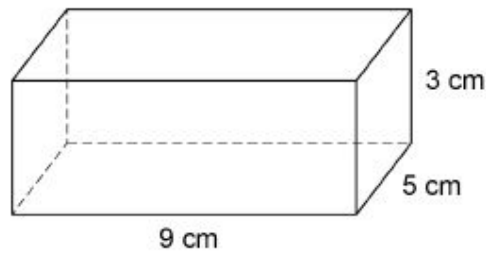
Calculate $\sqrt[4]{20736}$

Answer _____

(Total 1 mark)

Q7.

Here is a cuboid.



The two **largest** faces are blue.

The other four faces are green.

Is the total blue area greater than the total green area?

You **must** show your working.

(Total 3 marks)

Q8.

Work out the area of a circle, radius 3.5 cm.

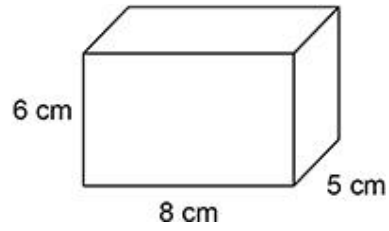
Give your answer to 1 decimal place.

Answer _____ cm²

(Total 3 marks)

Q9.

Here is a cuboid.



Work out the volume.

Answer _____ cm^3
(Total 1 mark)

Q10.

(a) Expand $2(d + 3)$

Answer _____
(2)

(b) Factorise $5x + 10$

Answer _____
(2)
(Total 4 marks)

Q11.

A bag contains 20 counters.

19 blue

1 yellow

Two counters are taken out at random.

- (a) If the two counters are the **same** colour, what is the probability the next counter taken at random is yellow?

Answer _____

(1)

- (b) If the two counters are **different** colours, what is the probability the next counter taken at random is yellow?

Answer _____

(1)

(Total 2 marks)

Q12.

Put these probabilities in order, starting with the **least** likely.

72%

0.705

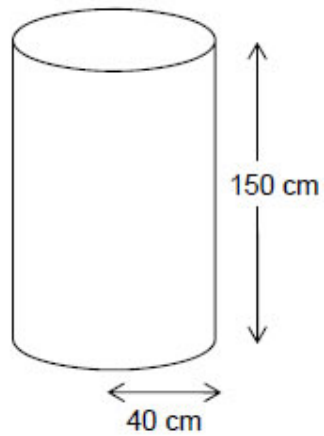
$\frac{7}{10}$

Answer _____ , _____ , _____

(Total 2 marks)

Q13.

The cylinder has a radius of 40 cm and a height of 150 cm.

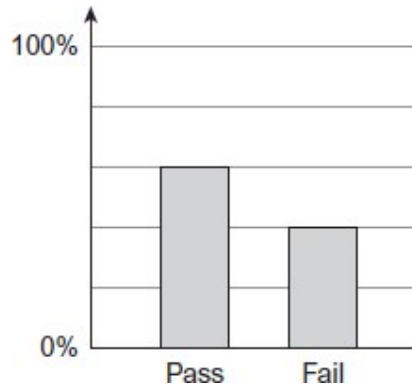


Work out the volume of the cylinder.

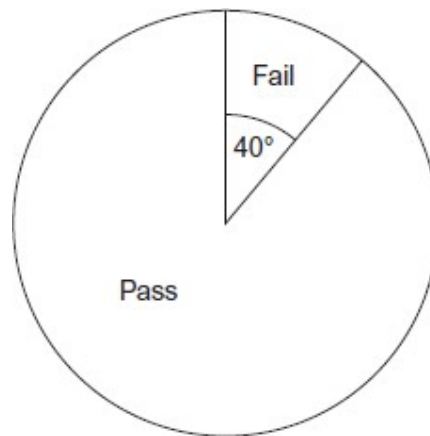
Answer _____ cm³
(Total 2 marks)

Q14.

Some students take a cycling test.
The percentage bar chart shows the results.



The students who fail the test take it a second time.
The pie chart shows the results of the second test.



Two students fail the second test.

How many students pass the test first time?

Answer _____

(Total 5 marks)

Q15.

Write down the sum of the **exterior** angles of any polygon.

Answer _____

(Total 1 mark)

Q16.

A school play takes place each day from Monday to Friday.

Here are the attendances on four of the days.

Monday	Tuesday	Wednesday	Thursday
72	83	88	97

For all **five** days, the mean attendance is 90

Work out the attendance on Friday.

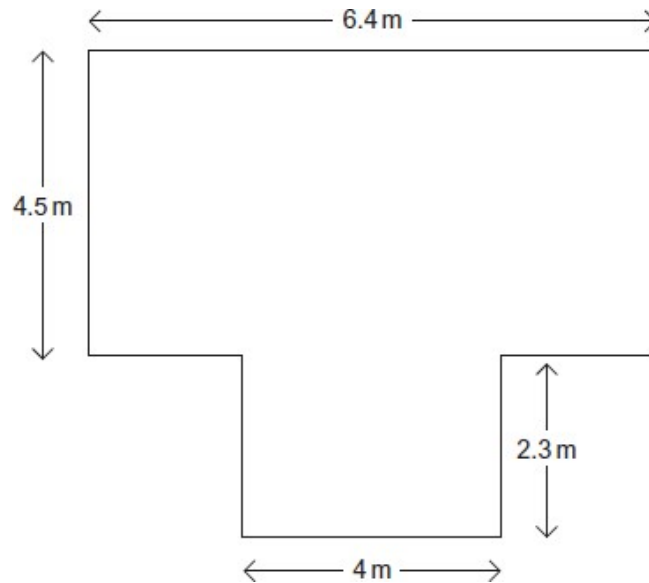
Answer _____

(Total 3 marks)

Q17.

This diagram shows Adam's garden.
It is in the shape of two rectangles joined together.

Not drawn accurately



- (a) Work out the area of the garden.

Answer _____ m²
(Total 2 marks)

Q18.

- (a) Which of these values could represent a probability?
Circle your answer.

-0.2 1.1 0.8 $\frac{6}{5}$

(1)

- (b) A fair ordinary dice is rolled once.
Circle the probability of rolling a 3 or a 4

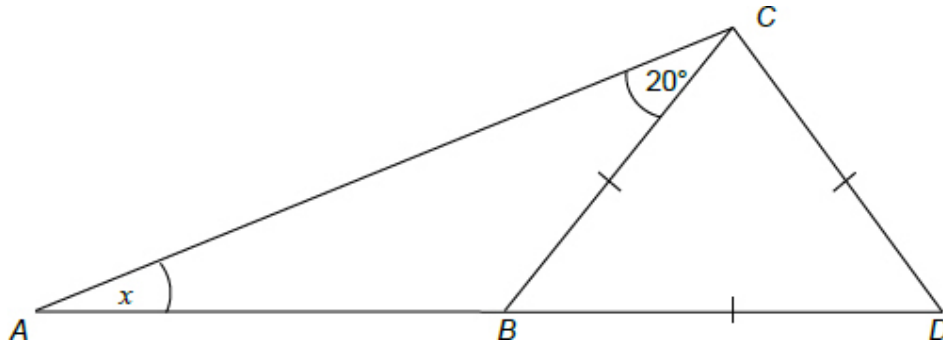
$\frac{1}{6}$ $\frac{2}{6}$ $\frac{3}{6}$ $\frac{4}{6}$

(1)

(Total 2 marks)

Q21.

The diagram shows a triangle ACD and an **equilateral** triangle BCD



Not drawn accurately

Work out the size of angle x

Answer _____ °

(Total 3 marks)

Q22.

The value of a house is £120 000.

The value is expected to increase by 5% each year.

Work out the expected value after 4 years.

Give your answer to 2 significant figures.

You **must** show your working.

Answer £ _____

(Total 4 marks)