Answer **all** the questions

1 In the Philippines the unit of currency is the Philippine peso.

Value added tax (VAT) is charged on products at a rate of 12%.

If a meal in a fast-food restaurant costs 154 Philippine pesos including VAT, then how much VAT has been paid?

[5 marks]

TURN OVER FOR THE NEXT QUESTION

2 Find the median of the following set of numbers (which are not necessarily listed in increasing order):

$$\frac{7}{9}, \quad \frac{11}{12}, \quad \frac{13}{15}, \quad \frac{21}{25}$$

[5 marks]

3 After Halloween, sisters Cleo and Mila are counting their sweets.

The numbers of sweets Cleo and Mila have are in the ratio $5 : 4$.

If Cleo gives Mila 6 of her sweets, then they will both have the same number of sweets.

How many sweets do the sisters have in total?

[5 marks]

TURN OVER FOR THE NEXT QUESTION

4 A solid sphere and a solid cylinder have the same radius.

The surface area of the sphere and the total surface area of the cylinder are the same.

Find the ratio of the volume of the sphere to the volume of the cylinder, giving your answer in the form $a : b$ where a and b are whole numbers.

[A sphere of radius r has surface area $4\pi r^2$ and volume $\frac{4}{3}\pi r^3$.]

[5 marks]

5 In a certain primary school, one-fifth of the pupils are in Year 4.

After five Year 4 pupils leave, one-sixth of the pupils in the school are in Year 4.

How many pupils are now in the school?

[5 marks]

TURN OVER FOR THE NEXT QUESTION

6 There are two separate tanks containing water.

Tank A initially contains 123 litres of water. Tank B initially contains 321 litres of water.

A tap is turned on which fills Tank A. At the same time, a plug is pulled out which drains Tank B.

The tap fills Tank A at a rate of 4.5 litres per minute, and water drains from Tank B at a rate of 0.9 litres per minute.

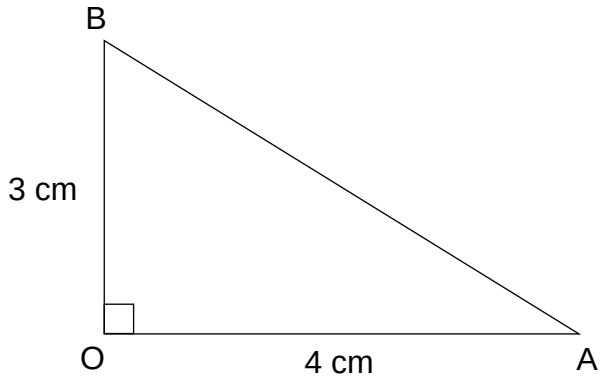
At some point later, both tanks contain exactly the same amount of water.

How much water is in each tank at this time?

[5 marks]

7 The diagram shows a triangle AOB.

The length of OA is 4 cm, and the length of OB is 3 cm. Angle AOB is a right angle.



Find the shortest distance between the vertex O and the edge AB.

[5 marks]

TURN OVER FOR THE NEXT QUESTION

8 The three positive whole numbers 84, 90, and n have highest common factor 1 and lowest common multiple 1260.

Find all the possibilities for n, giving a brief justification for your answer.

[5 marks]

9 A cylindrical bucket of radius 6 cm contains some water.

When a heavy solid cone of radius 4 cm and perpendicular height 12 cm is carefully lowered into the bucket (base down), the vertex of the cone is 3 cm above the new water level.

What was the original depth of the water in the bucket?

[The volume of a cone of radius r and perpendicular height h is $\frac{1}{3}\pi r^2 h$.]

[5 marks]

ANSWER SPACE CONTINUES ON THE NEXT PAGE

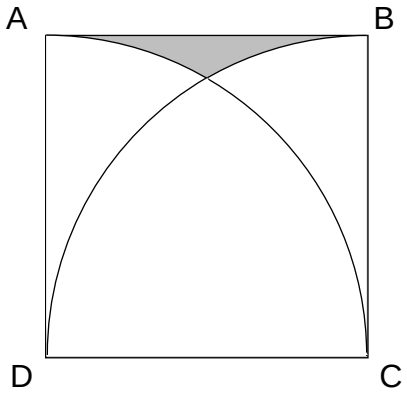
ADDITIONAL ANSWER SPACE FOR QUESTION 9

10 The diagram shows a square ABCD and two arcs of circles.

The arc AC is centred at D, and the arc BD is centred at C.

Find the proportion of the square that is shaded.

[5 marks]



ANSWER SPACE CONTINUES ON THE NEXT PAGE

ADDITIONAL ANSWER SPACE FOR QUESTION 10

END OF QUESTIONS