



Name: \_\_\_\_\_

**Year 8 Level**  
**Department of Mathematics 2015**  
**Parade College**

**TEST: Ch 10 Measurement**

Section	Marks	Your mark
A: Vocabulary knowledge	4	
B: Multiple Choice	10	
C: Short Answer	26	
D: Analysis Question	10	
Total Marks = 50		

**Section A: Vocabulary Knowledge ( 1 × 4 = 4 marks)**

1. The \_\_\_\_\_ of a shape is the distance around the outside boundaries of the shape.
2. The \_\_\_\_\_ of the circumference to the diameter of a circle has the value of  $\pi$ .
3. The \_\_\_\_\_ of a shape is the amount of flat surface enclosed by the shape.
4. Volume is a measure of the amount of \_\_\_\_\_ inside a 3-dimensional object

**WORD LIST**

**Perimeter                  volume          area                  length          space**  
**ratio                          cross-section          highest common factor**

## Section B

### Multiple Choice Section

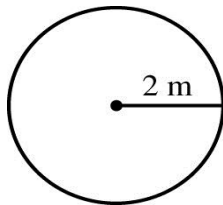
#### Question 1

What is the conversion of 83 600 m to km?

- A 836 km
- B 0.836 km
- C 83.6 km
- D 8.36 km
- E 8360 km

#### Question 2

What is the **diameter** of the circle shown below?



- A  $\pi \times 2$  m
- B 4 m
- C 1 m
- D  $\pi \times 4$  m
- E 2 m

#### Question 3

The area of a parallelogram with base 5 cm and height 4 cm is:

- A  $10 \text{ cm}^2$
- B  $50 \text{ cm}^2$
- C  $5 \text{ cm}^2$
- D  $20 \text{ cm}^2$
- E  $25 \text{ cm}^2$ .

**Question 4**

5,000 cm<sup>2</sup> is equal to:

- A. 0.5 m<sup>2</sup>
- B. 5 m<sup>2</sup>
- C. 50 m<sup>2</sup>
- D. 5000 m<sup>2</sup>
- E. 500000 m<sup>2</sup>

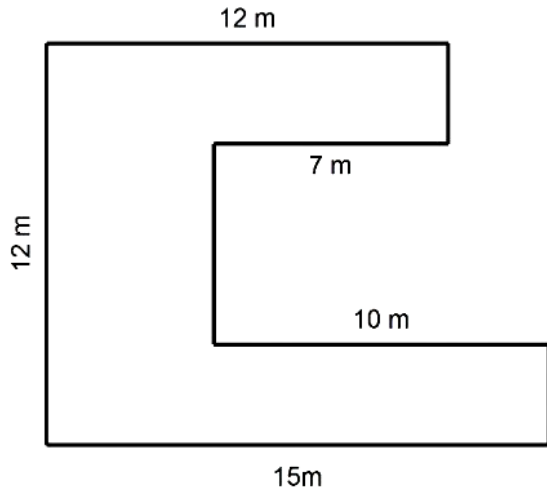
**Question 5**

A rectangle has a length of 12 cm and a width of 10 cm. Its **perimeter** would be:

- A. 22 cm
- B. 44 cm
- C. 32 cm
- D. 34 cm
- E. 120 cm

**Question 6**

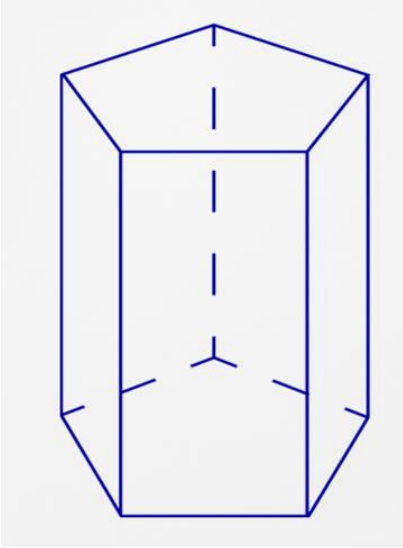
In the shape below, all sides are either horizontal or vertical.



If we calculate the perimeter of this shape we would get:

- A. 56 m
- B. 62 m
- C. 66 m
- D. 68 m
- E. Cannot be calculated as there is not enough information

### Question 7

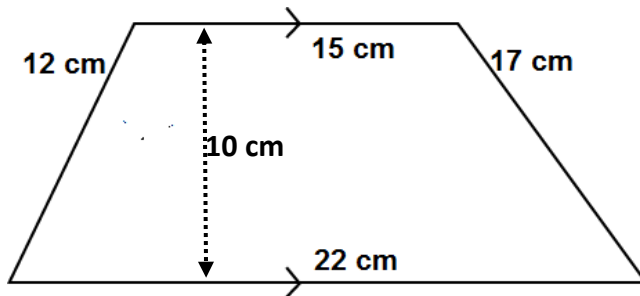


Can the shape above be referred to as a prism? Select the accurate answer.

- A. Yes, because all sides are straight lines
- B. Yes, because it has a uniform cross-section
- C. Yes, because it has a pentagon as its base
- D. Yes, because it could also be laid flat on one of its rectangular faces.
- E. Yes, because the base has a regular shape.

### Question 8

Consider the trapezium shown in the diagram below:

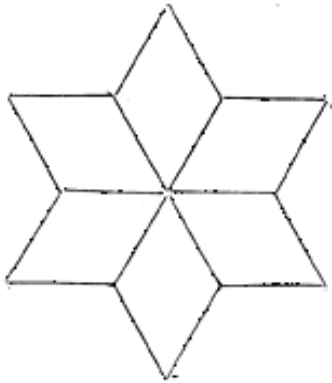


A calculation which would correctly give its area in square centimetres would be:

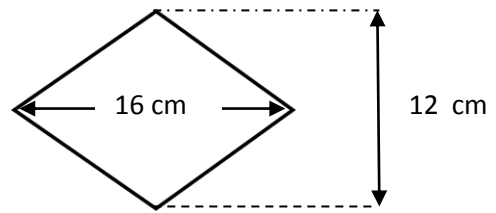
- A.  $\frac{10(12+17)}{2}$
- B.  $\frac{12(15+22)}{2}$
- C.  $\frac{17(15+22)}{2}$
- D.  $\frac{10(12+15)}{2}$
- E.  $\frac{10(15+22)}{2}$

### Question 9

Evan has been asked to design an emblem for his basketball club. He has come up with a star made up entirely of rhombuses, as shown below.



Each rhombus has the following measurements:

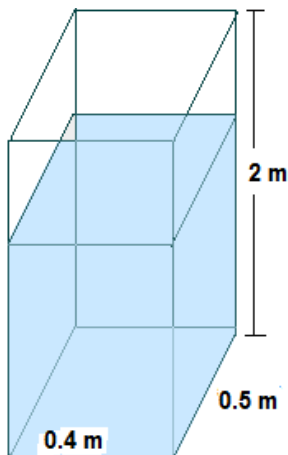


The total area of Evan's star is:

- A.  $96\text{cm}^2$
- B.  $192\text{ cm}^2$
- C.  $288\text{ cm}^2$
- D.  $576\text{ cm}^2$
- E.  $1152\text{ cm}^2$

### Question 10

The water tank shown in the diagram below is in the shape of a rectangular prism:



The volume of the tank is:

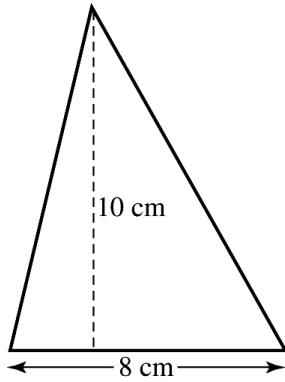
- A.  $0.4\text{ m}^3$
- B.  $0.8\text{ m}^3$
- C.  $1\text{ m}^3$
- D.  $2.9\text{ m}^3$
- E.  $5.8\text{ m}^3$

**Section C: Short Answer**

*Full working must be shown in order to gain full marks.*

**Question 1**

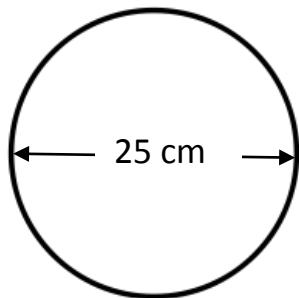
Calculate the area of the triangle shown below:



2 marks

**Question 2**

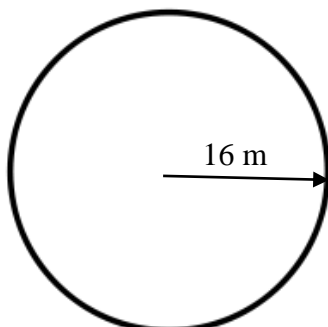
The diameter of a circle is 25 cm, as shown below. Calculate the circumference of this circle, correct to one decimal place.



2 marks

**Question 3**

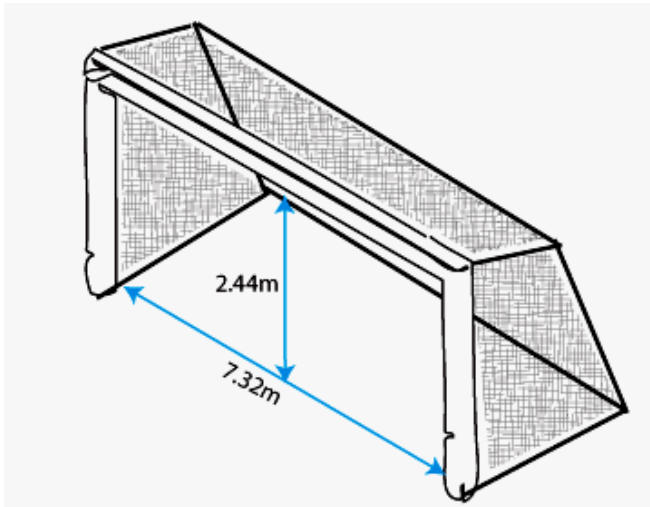
The radius of a circle is 16 m. Calculate the area of the circle, correct to the nearest whole number.



2 marks

#### Question 4

The diagram below shows the dimensions of a soccer goal:

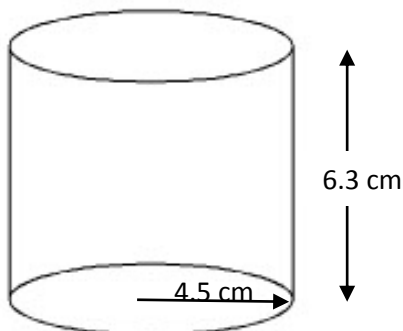


What is the area of the rectangular goal face? Give your answer correct to two decimal places.

2 marks

#### Question 5

The pistons in a certain model of car are cylinders with a radius of 4.5 cm and a height of 6.3 cm. The car's engine has 4 of these pistons.



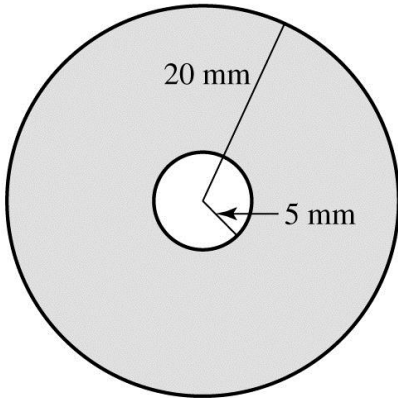
- a. Calculate the volume of a single piston in cubic centimetres. Give your answer correct to two decimal places.

- b. Calculate the engine capacity (the total volume of all the pistons). Give your answer correct to one decimal place.

3 marks

**Question 6**

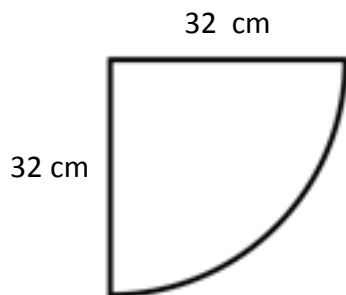
Calculate, the area of this annulus, in square millimetres, correct to two decimal places:



3 marks

**Question 7**

Calculate, correct to one decimal place, the **perimeter** of the shape shown below

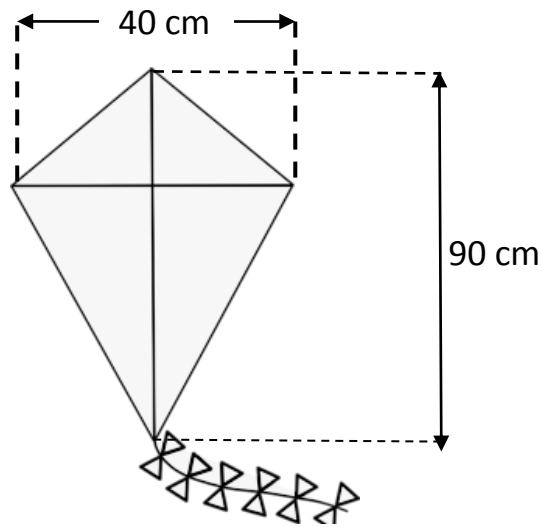


3 marks



### Question 8

Jordan is going to make a kite out of a special light weight fabric. His kite will have aluminium diagonals with dimensions as shown:

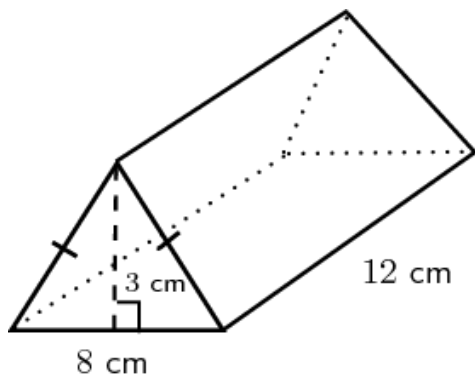


- Calculate the area of fabric that will be required for this kite.
  
  
  
  
  
  
  
  
  
  
- The cost of the fabric is \$0.10 per square centimetre, and the cost of the aluminium tubing for the diagonals is \$0.30 per centimetre. Calculate the total cost of materials for Jordan's kite

3 marks.

### Question 9

For the triangular prism shown below:



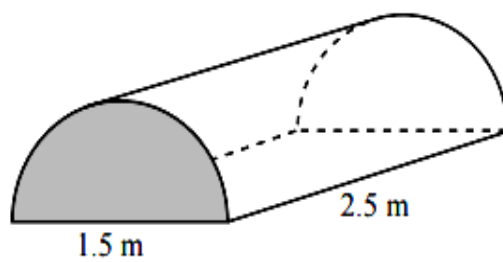
a. Calculate the area of the triangular cross-section.

b. Hence, find the volume of the prism.

3 marks

### Question 10

A tent with semicircular ends is in the shape of a prism. The diameter of the ends is 1.5 m. The tent is 2.5 m long.



Calculate the volume of this tent. Give your answer in cubic metres, to the nearest whole number.

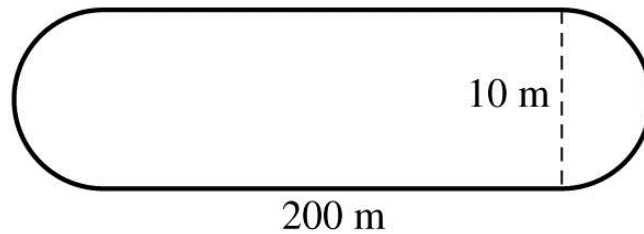
3 marks

### Section D: Analysis Section

*Full working must be shown in order to gain full marks.*

#### Question

Phil and Stefan are training for the next football season. They are jogging together around the athletics track shown in the diagram below:



- a What distance would they cover, if they jog two laps of the track?

3 marks

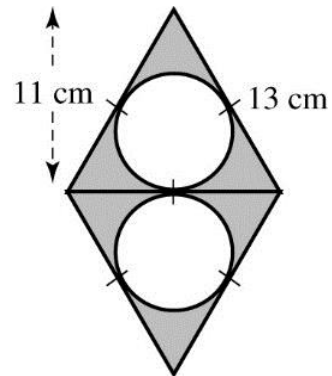
- b They jog at a speed of 140 metres per minute. How long will it take them to jog three laps of the track? Give your answer in minutes, correct to two decimal places.

2 marks

- c The track surrounds a lawn. Calculate the area of this lawn, correct to the nearest square metre.

3 marks

- d. Phil and Stefan's football club has the following logo on all its uniforms:  
Two identical equilateral triangles make up the design



If each circle takes up an area of  $20 \text{ cm}^2$ , find the area of the shaded part.

2 marks

