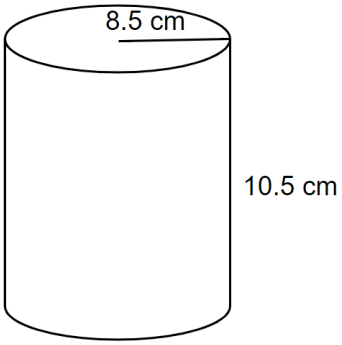
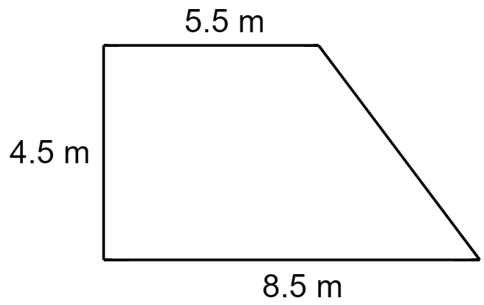
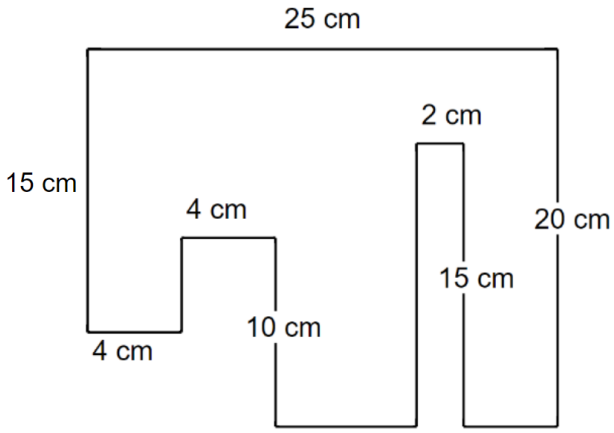
Year 8 Worksheet 9: Area and Volume

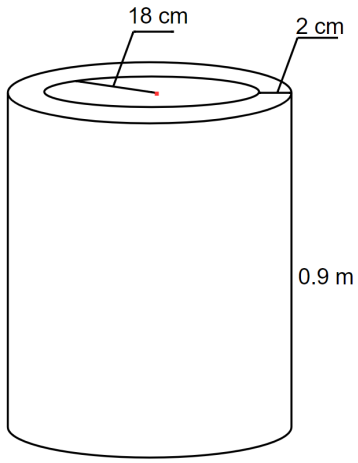
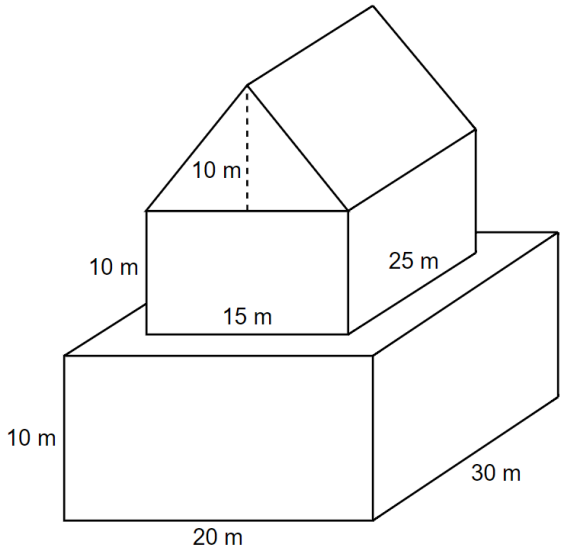
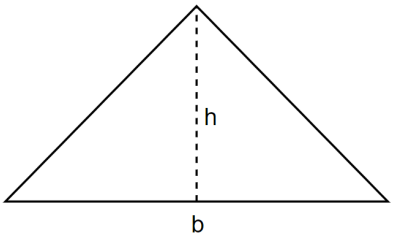
Question 1: Answer the following.

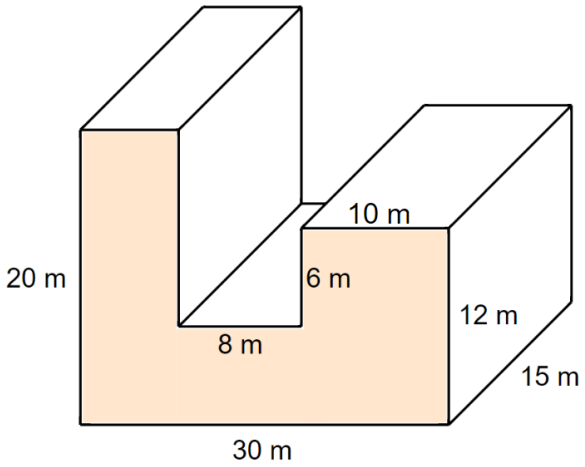
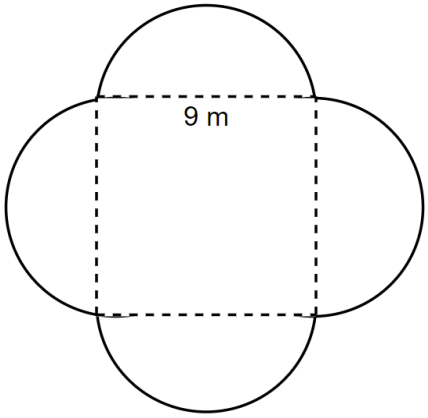
1	What is the area of a rectangle with a l = 5 cm and a w = 8 cm? A. 10 cm^2 B. 13 cm^2 C. 40 cm^2 D. 48 cm^2
2	What is the perimeter of a square with a side length of 9 meters? A. 9 meters B. 18 meters C. 27 meters D. 36 meters
3	If a triangle has base = 6 cm and a height = 8 cm, what is its area? A. 12 cm^2 B. 24 cm^2 C. 32 cm^2 D. 48 cm^2
4	What is the area of a circle with a radius of 5 cm? Note: π is Pi. A. 10π cm^2 B. 15π cm^2 C. 25π cm^2 D. 50π cm^2
5	If a rectangular prism has dimensions of 4 cm by 3 cm by 6 cm, what is its volume? A. 18 cm^3 B. 24 cm^3 C. 36 cm^3 D. 72 cm^3

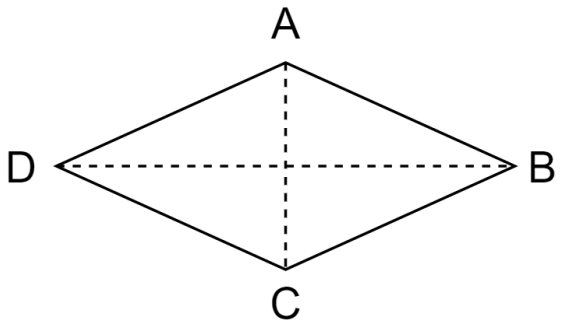
6	If a triangular prism has a base area of 20 cm^2 and a height of 5 cm, what is its volume? A. 100 cm^3 B. 120 cm^3 C. 150 cm^3 D. 200 cm^3
7	What is the surface area of a cube with a side length of 3 cm? A. 9 cm^2 B. 18 cm^2 C. 27 cm^2 D. 54 cm^2
8	If the diameter of a circle is 10 cm, what is its circumference? A. 10π cm B. 25π cm C. 50π cm D. 100π cm
9	If the diameter of a circle is 20 cm, what is its area? A. 10π cm^2 B. 25π cm^2 C. 50π cm^2 D. 100π cm^2
10	What is the total surface area of a rectangular prism with dimensions 7 cm by 4 cm by 3 cm? A. 58 cm^2 B. 86 cm^2 C. 122 cm^2 D. 162 cm^2

Question 2: Answer the following.

1	Find the surface area and volume of the cylinder, correct it to 3 d.p. 
2	Find the perimeter and area of the trapezium. 
3	Find the perimeter and area of the shape below. 

4	Calculate the volume of this pipe. 
5	Calculate the volume of the house below. 
6	If the area of the triangle below is 10 unit square. Write all the possible values for its base and height. 

7	Give the solid below. Calculate the shaded area and its volume. 
8	Calculate the perimeter and area for the shape below, correct it to 3 d.p. 

9	What is the name of ABCD? Calculate the perimeter and area where AC = 10 m and DB = 24 m. 
10	A wheel has a radius of 3.7 cm. a. What is the area of the wheel to 3 d.p? b. What distance does it travel after one turn to 3 d.p? c. How many full turns does the wheel make to travel 464 meters?

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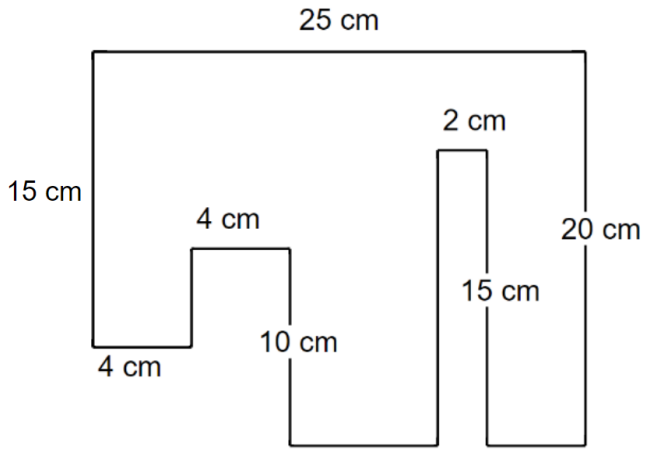
Answer Key

Question 1: Answer the following.

1	What is the area of a rectangle with a l = 5 cm and a w = 8 cm? A. 10 cm² B. 13 cm² C. 40 cm² D. 48 cm² Answer: C. 40 cm²
2	What is the perimeter of a square with a side length of 9 meters? A. 9 meters B. 18 meters C. 27 meters D. 36 meters Answer: D. 36 meters
3	If a triangle has a base of 6 cm and a height of 8 cm, what is its area? A. 12 cm² B. 24 cm² C. 32 cm² D. 48 cm² Answer: B. 24 cm²
4	What is the area of a circle with a radius of 5 cm? Note: π is Pi. A. 10π cm² B. 15π cm² C. 25π cm² D. 50π cm² Answer: C. 25π cm²
5	If a rectangular prism has dimensions of 4 cm by 3 cm by 6 cm, what is its volume? A. 18 cm³ B. 24 cm³ C. 36 cm³ D. 72 cm³ Answer: D. 72 cm³

6	If a triangular prism has a base area of 20 cm^2 and a height of 5 cm, what is its volume? A. 100 cm^3 B. 120 cm^3 C. 150 cm^3 D. 200 cm^3 Answer: A. 100 cm^3
7	What is the surface area of a cube with a side length of 3 cm? A. 9 cm^2 B. 18 cm^2 C. 27 cm^2 D. 54 cm^2 Answer: D. 54 cm^2
8	If the diameter of a circle is 10 cm, what is its circumference? A. 10π cm B. 25π cm C. 50π cm D. 100π cm Answer: A. 10π cm
9	If the diameter of a circle is 20 cm, what is its area? A. 10π cm^2 B. 25π cm^2 C. 50π cm^2 D. 100π cm^2 Answer: D. 100π cm^2
10	What is the total surface area of a rectangular prism with dimensions 7 cm by 4 cm by 3 cm? A. 58 cm^2 B. 86 cm^2 C. 122 cm^2 D. 162 cm^2 Answer: C. 122 cm^2

Question 2: Answer the following.

1	Find the surface area and volume of the cylinder. V = 2383.291 cm³ S = 1014.734 cm²
2	Find the perimeter and area of the trapezium. P = 23.908 m A = 31.5 m²
3	Find the perimeter and area of the shape below. P = 2*(25+20) = 90 cm A = (25x20) - (5x4) - (4x10) - (2x15) = 410 cm² 
4	Calculate the volume of this pipe. Height = 90 cm Base area = 76 Pi Volume = 21488.49 cm³
5	Calculate the volume of the house below. Triangular = 1875 m³ Rectangular 1 = 10x15x25 = 3750 m³ Rectangular 2 = 10x20x30 = 6000 m³ Volume = 11625 m³

6	If the area of the triangle below is 10 unit square. Write all the possible values for its base and height. • 1x20 • 2x10 • 4x5
7	Give the solid below. Calculate the shaded area and its volume. Area = 408 m^2 Volume = 6120 m^3
8	Calculate the perimeter and area for the shape below, correct it to 3 d.p. P = 18*Pi = 56.549 m A = 127.235 m^2
9	What is the name of ABCD? Calculate the perimeter and area where AC = 10 m and DB = 24 m. Side = sqrt(5^2 + 12^2) = 13 m P = 52 m A = 120 m^2
10	a. What is the area of the wheel to 3 d.p? Area = π × $(\text{Radius})^2$ = π × $(3.7\text{ cm})^2$ ≈ 43.008 square centimeters b. What distance does it travel after one turn to 3 d.p? C = 2π × Radius ≈ 23.248 centimeters c. How many full turns does the wheel make to travel 464 meters? T = Total distance / Distance per turn = 20 turns.