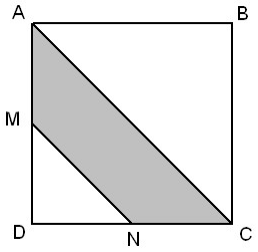
9 Year 5 Term 2 Week 9 Homework

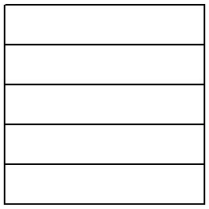
9.1 Topic 1 — Length and Area

Exercise 9.1.1

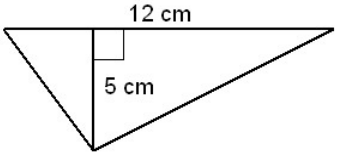
1. *If the square ABCD has an area of 64 cm^2. M and N are midpoints of sides AD and CD respectively. Find the shaded area in cm^2.*



2. *The square shown below is divided into five congruent rectangles. The perimeter of each rectangle is 24 cm. Find the area of the square.*



3. *Find the area of the triangle shown below: Area =* _____ cm^2.



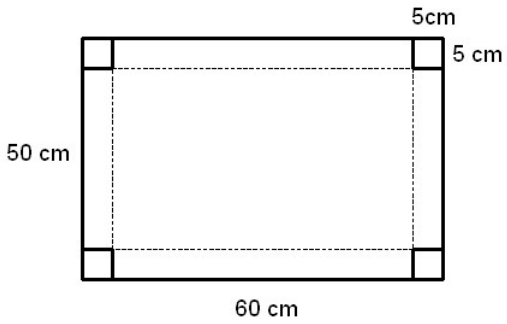
9.2 Topic 2 — Volume and Surface Area

Exercise 9.2.1

1. *How many 1.5 L containers of water are required to fill a rectangular tank 50 cm by 40 cm by 30 cm which already contains 12 litres of water?*

2. *A rectangular tank 60 cm long and 40 cm wide contains 24 litres of water. When 200 marbles are placed in the water, the height of the water level becomes 12 cm. Find the volume of each marble.*

3. *To make an open rectangular box from a rectangular piece of cardboard 60 cm by 50 cm, 4 squares of sides 5 cm are cut from the corners. The cardboard is then folded along the dotted lines as shown in the figure. What is the volume of the box?*



4. *A rectangular container of length 60 cm and width 40 cm contains 12 litres of water. Find the height of the water level.*

9.3 Topic 3 — 3-D Figures

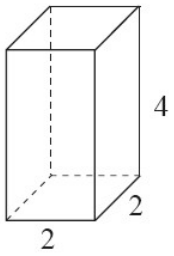
Euler's Rule: E = F + V - 2 where: **E** = No. of edges, **F** = No. of faces and **V** = No. of vertices.

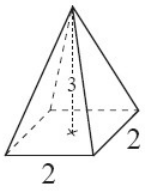
Exercise 9.3.1

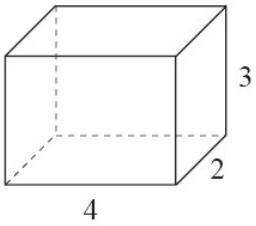
1. *Complete the following table using the Euler's Rule.*

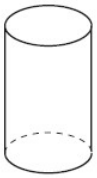
Solids	*Number of Faces*	*Number of Vertices*	*Number of Edges (E=F+V-2)*
Cube			
Rectangular Prism			
Triangular Prism			
Square Pyramid			
Triangular Pyramid			
Pentagonal Pyramid			
Hexagonal Pyramid			
Heptagonal Pyramid			
Octagonal Pyramid			

2. *How many planes of symmetry does it have for each solid?*

i) 

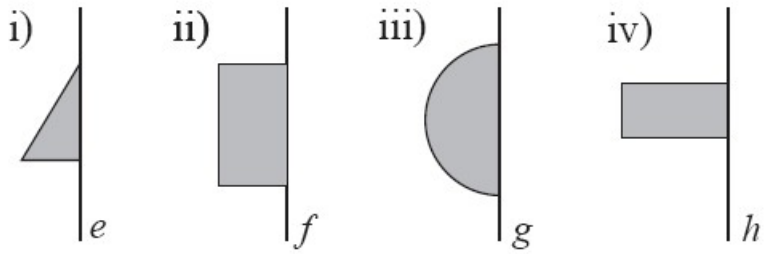
ii) 

iii) 

iv) 

(i) _____ , *(ii)* _____ , *(iii)* _____ , *(iv)* _____

3. *Which type of solid is formed by rotating each of the shaded shapes around the given axis?*

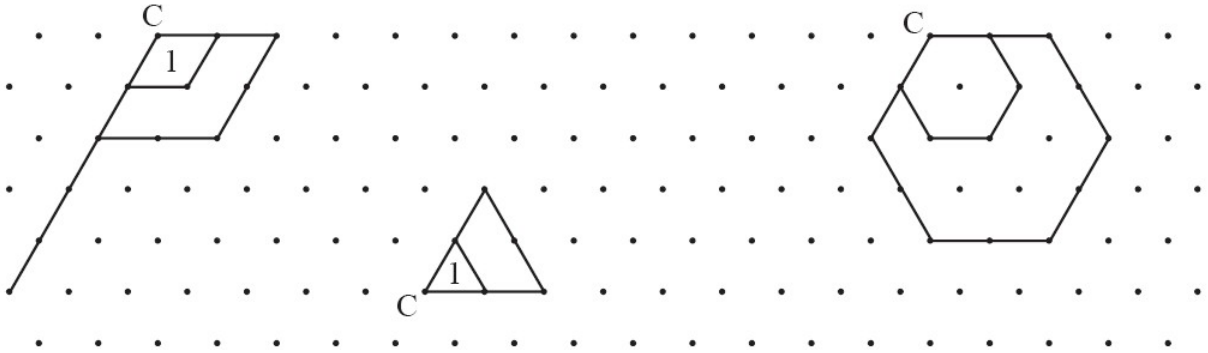


(i) _____ , *(ii)* _____ , *(iii)* _____ , *(iv)* _____

9.4 Topic 4 — 2-D Figures

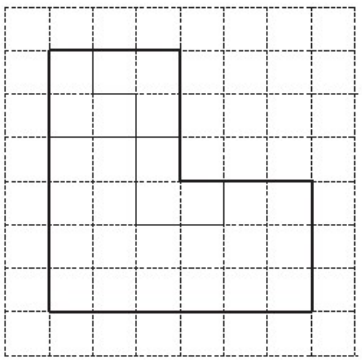
Exercise 9.4.1

1. *Continue enlarging the rhombus, the triangle and the regular hexagon. Write their area as sequences.*

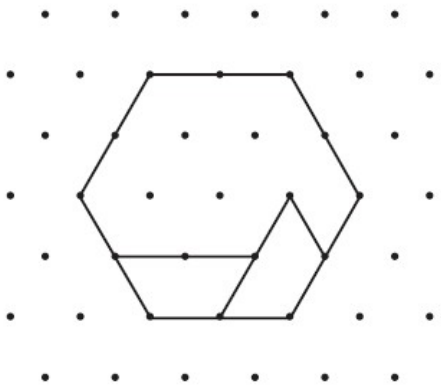


2. *Continue dividing the large shape into congruent parts.*

a)

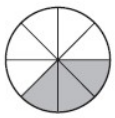


b)

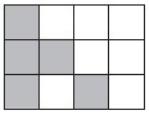


3. *What part of each diagram is shaded?*

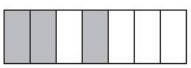
a) 1



b) 1



c) 1



d) 1

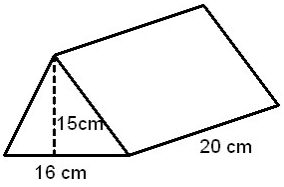
(a) _____ , *(b)* _____ , *(c)* _____ , *(d)* _____

9.5 Problem Solving (Volume of Prisms)

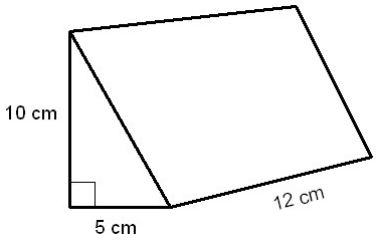
V = A $\times$ **h** , where: **V** = volume, **A** = Area of Cross Section (base area) and **h** = height .

Exercise 9.5.1 Find the volume of the following prisms:

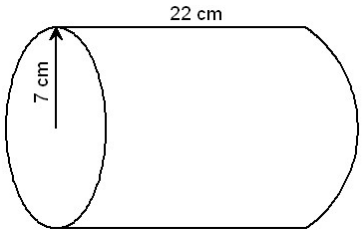
(a) Volume = _____ cm^3



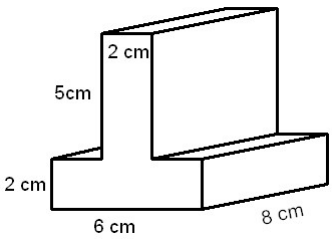
(b) Volume = _____ cm^3



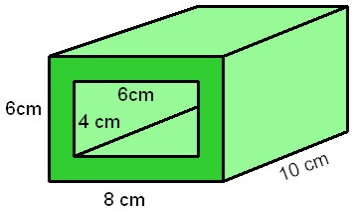
(c) Volume = _____ cm^3



(d) Volume = _____ cm^3



(e) Volume = _____ cm^3



9.6 Test Paper 9

9.6.1 Part A — 10 Multiple Choice Questions (1 mark each)

1. 25% of 36 equals
   (A) 7 (B) 8 (C) $8\frac{1}{2}$ (D) 9

2. $\frac{14}{5}$ equals
   (A) $2\frac{1}{3}$ (B) $3\frac{1}{5}$ (C) $2\frac{4}{5}$ (D) $2\frac{3}{5}$

3. $6 \times 5\frac{1}{4}$ equals
   (A) $23\frac{1}{2}$ (B) $31\frac{1}{2}$ (C) $31\frac{1}{3}$ (D) $30\frac{1}{4}$

4. How many prime numbers between 10 to 30?
   (A) 4 (B) 5 (C) 6 (D) 7

5. 100 hundred percent equals
   (A) 100 (B) 0.01 (C) 0.1 (D) 1.00

6. The square of a number is one less than half of one hundred. The number is
   (A) 6 (B) 7 (C) 8 (D) 9

7. 8 items can be purchased for $12. How many for $30?
   (A) 16 (B) 18 (C) 20 (D) 26

8. A car travels 120 km on 10 litres of petrol. How far will it travel on 8 litres of petrol?
   (A) 80 km (B) 84 km (C) 90 km (D) 96 km

9. $\frac{1}{4}$ of \$1.40 + $\frac{3}{4}$ of \$8.60 equals
   (A) \$6.50 (B) \$6.80 (C) \$5.60 (D) \$8.25

10. The number of turns the hour hand of clock rotates in the month of June is
    (A) 60 (B) 600 (C) 720 (D) 744

9.6.2 Part B — 10 Average Questions (2 marks each)

1. $2x - 6 + 4x = 42$

2. $5y + 8 = 18$.

3. $2(4 + y) = 22$

4. $2y + 5y - 8 = 41$

5. $9y - 6 + 3y = 42$

6. $4z + 6 - 2z = 22$

7. $6z + 3 = 51$

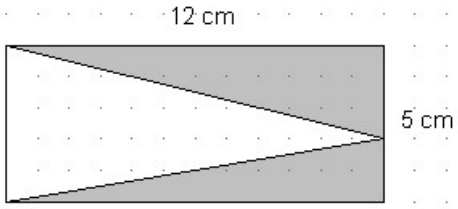
8. $3x + 5x + 4x = 96$

9. $7x - 2x + 5x = 46$

10. $3(7 + y) = 48$

9.6.3 Part C — 10 Extension Questions (3 marks each)

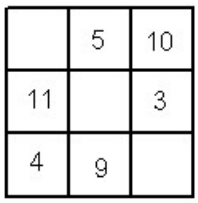
1. What fraction of the rectangle shown in the diagram is shaded?



2. Linda makes up a sequence of numbers. She starts with the number 5. Each number after 5 is 2 less than 5 times the previous number. What will be fifth number in Linda's sequence?

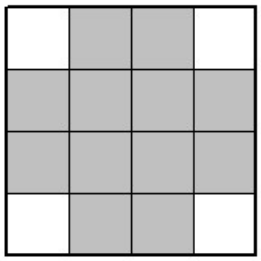
3. A circle just fits inside a square. If the radius of the circle is 12 cm, find the area of the square in square centimetres.

4. The magic square has the property that each row, column and diagonal must add to the same number. What is magic number of the magic square show below?

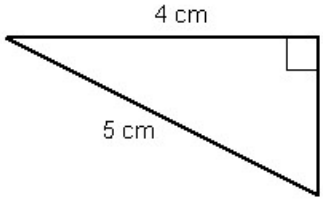


Answer: _____

5. We covered the square window with black paper in order to cut down the light coming into the room. What fraction of the window has been covered?



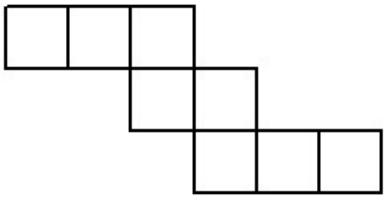
6. The triangle shown below has a perimeter of 12 cm. Find the area of this triangle.



7. We drove the 506 km to Canberra in 5 hours and returned in 6 hours. What was our average speed for the entire trip?

8. Sixteen more than half the square of a certain number is 144. What must the number be?

9. A group of squares of side 3 cm are placed on a table as shown below. Find the perimeter of the figure.



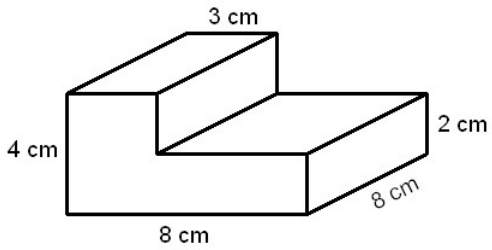
10. What is the next number in the series 2, 3, 5, 9, 17, _____ ?

9.6.4 Part D — 8 Challenging Questions (5 marks each)

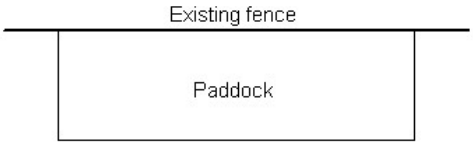
1. A fish tank is 120 cm long, 40 cm wide and 50 cm high. It contains 20 litres of water. How long will it take to fill it up, if the flow rate from a tap is 5 litres per minute?

2. A rectangular tank 50 cm long and 25 cm wide contains 12 litres of water. When four metal cubes of the same size are placed in the tank, the height of the water level becomes 10 cm. What is the length of each edge of the cube?

3. Find the volume of the figure shown below.



4. A farmer wants to build a rectangular paddock whose length is 3 times its breath. He has 120 metres of wire and the paddock will be built against an existing fence, so he doesn't have to use his wire on that side. What will be the area of the paddock?



5. John wants to cover the tiles on the floor while he painted the ceiling. The floor measured 5 m by 3 m and the only thing he could find in the kitchen was a roll of aluminum foil which measured 25 m by 30 cm. What fraction of the floor could be covered with this roll of foil?

6. The length of a rectangle is 6 m more than its breadth. Its perimeter is 30 m. What is its area?

7. When a container is half full of water it weighs 24 kg. When it is one quarter full it weighs 18 kg. What is the weight of the container when it is empty?

8. When a glass is empty it weighs 600 g and when it is half full it weighs 930 g. How much does the glass weigh when it is full?