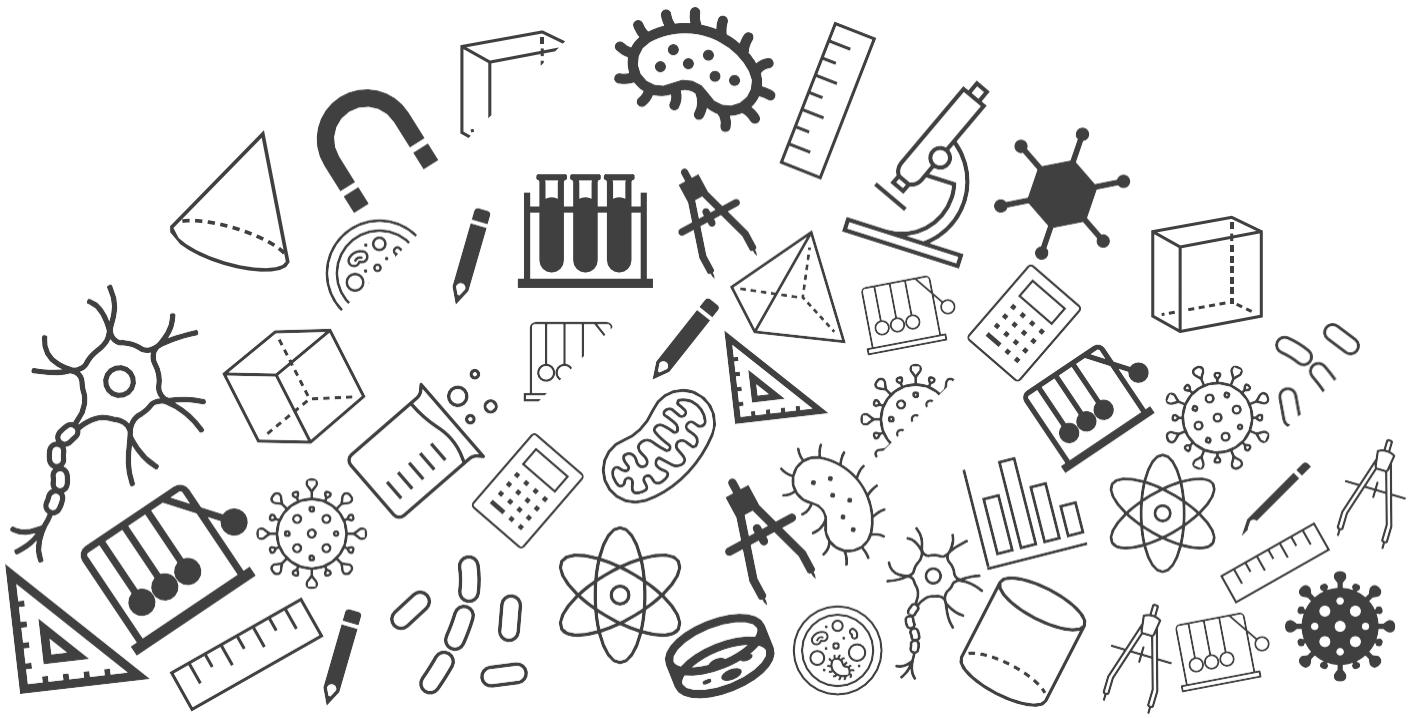
Grade 08: Maths
Exam Important Questions



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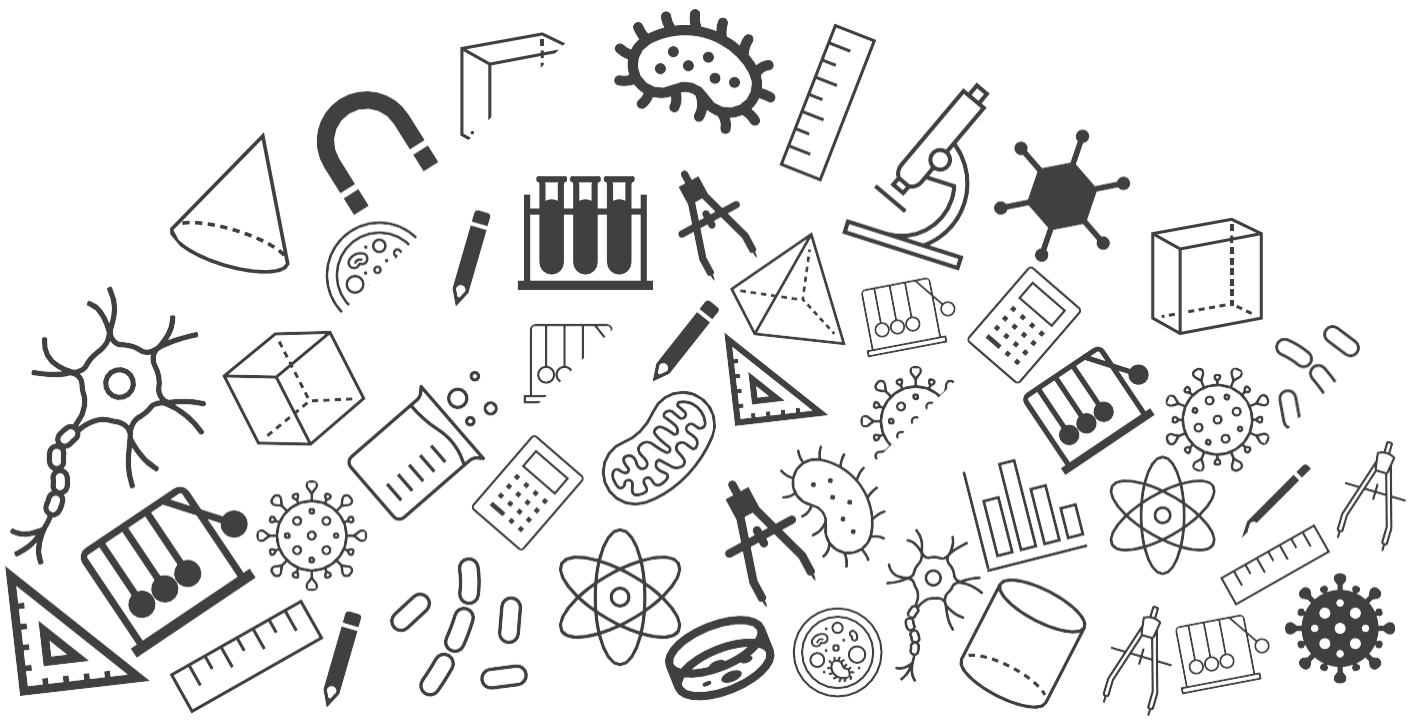
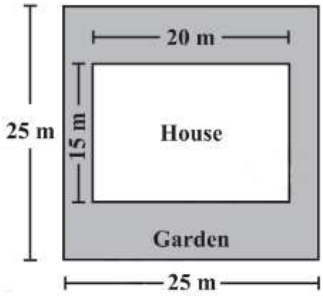


1. Mrs. Kaushik has a square plot with the measurement as shown in the figure. She wants to construct a house in the middle of the plot with the dimensions $20\ m \times\ 15\ m$. A garden is developed around the house. Find the total cost of developing a garden around the house at the rate of 55 per m^2.



[2 marks]

Solution:
According to the question,
Side of the square plot $= 25\ m$
Area of the square plot $= (Side)^2 = (25)^2 = 625\ m^2$
[0.5 mark]

Length of the house $= 20\ m$
Breadth of the house $= 15\ m$
Area of the house $=$ length $\times$ breadth
$= (20 \times 15)\ m^2 = 300\ m^2$
[0.5 mark]

Area of garden $=$ Area of square plot $-$ Area of house
$= (625 - 300)\ m^2 = 325\ m^2$
[0.5 mark]

Cost of developing the garden per sq.m $= ₹55$
Cost of developing the garden 325 sq.m $= ₹(55 \times 325) = ₹17,875$

Hence, the total cost of developing a garden around the house is $₹17,875$.
[0.5 mark]

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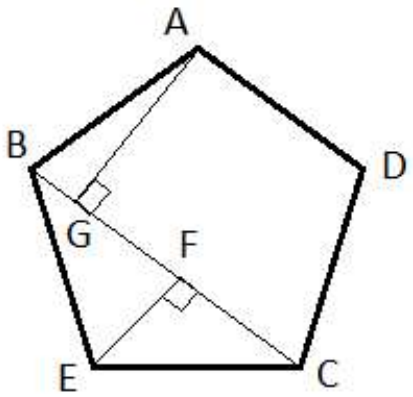
2. In the given pentagon, ratio of area of trapezium ABCD to area of △BEC is 5:2 and AG = 6 cm, EF = 4 cm. Find the length of BC if AD = 6 cm.



[5 marks]

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Solution:
Area of trapezium ABCD
= $\frac{1}{2}\times$(Sum of parallel sides)$\times$height
= $\frac{1}{2}\times$(AD+BC)$\times$AG
= $\frac{1}{2}\times$(6+BC)$\times$6
= 3$\times$(6+BC)

[1.5 marks]

Area of $\triangle$BEC = $\frac{1}{2}\times$base$\times$height
= $\frac{1}{2}\times$BC$\times$EF
= $\frac{1}{2}\times$BC$\times$4
= BC$\times$2

[1 mark]

According to given condition,

$$\frac{\text{area of ABCD}}{\text{area of }\triangle\text{BEC}} = \frac{5}{2}$$

$$\Rightarrow \frac{3\times(6+\text{BC})}{\text{BC}\times 2} = \frac{5}{2}$$

$$\Rightarrow \frac{6+\text{BC}}{\text{BC}} = \frac{5}{3}$$

$$\Rightarrow 3 \times (6 + BC) = 5 \times BC$$

$$\Rightarrow 18 + 3(BC) = 5(BC)$$

$$\Rightarrow 18 = 2(BC)$$

$$\Rightarrow BC = \frac{18}{2} = 9 \text{ cm}$$

[2.5 marks]

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3. The diagonals of a rhombus are $7.5\ \text{cm}$ and $12\ \text{cm}$. Find its area.
[2 marks]

Solution:
Given $d_1 = 7.5\ \text{cm}\ and\ d_2 = 12\ \text{cm}$

We know that,
Area of rhombus
$= \frac{1}{2} \times d_1 \times\ d_2$
[1 mark]
$= \frac{1}{2} \times 7.5 \times 12 = 45\ \text{cm}^2$

Hence area of rhombus is $45\ \text{cm}^2$
[1 mark]

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4. Find the height of the cylinder whose volume if $1.54\ \mathrm{m}^3$ and diameter of the base is 140 cm.

[3 marks]

Solution:
Given :
Volume of cylinder $= 1.54\ \mathrm{m}^3$ and

Diameter of cylinder$= 140\ \mathrm{cm}$

$\therefore \mathrm{Radius(r)} = \frac{d}{2} = \frac{140}{2} = 70\ \mathrm{cm} = 0.7\ \mathrm{m}$

[1 mark]

Volume of cylinder $= \pi r^2 h$
[0.5 mark]

$\Rightarrow 1.54 = \frac{22}{7} \times 0.7 \times 0.7 \times h$

$\Rightarrow h = \frac{1.54 \times 7}{22 \times 0.7 \times 0.7}$

$\Rightarrow h = \frac{154 \times 7 \times 10 \times 10}{22 \times 7 \times 7 \times 100} = 1\ \mathrm{m}$

Hence, the height of the cylinder is 1 m.
[1.5 mark]

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5. How many cubes each of side 0.5 cm are required to build a cube of volume of $8\ \text{cm}^3$?

[2 marks]

Solution:
Volume of a cube $= (Side)^3$
$\because$ Side of cube = 0.5 cm
$\therefore$ Volume of the cube $= (0.5)^3 = 0.125\ \text{cm}^3$

[1 mark]

The number of cubes required to make volume of $8\ \text{cm}^3$ cube
$= \dfrac{8}{0.125}$
$= \dfrac{8000}{125} = 64\ \text{cubes}$

[1 mark]

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6. Find the capacity of the rectangular cistern in litres whose dimensions are $11.2\ \mathrm{m} \times 6\ \mathrm{m} \times 5.8\ \mathrm{m}$. Find the area of the iron sheet required to make the cistern.
[3 marks]

Solution:
We know that volume of cuboid = length × breadth × height
[0.5 mark]

Volume of the cistern $= 11.2 \times 6 \times 5.8 = 389.76\ \mathrm{m}^3$
$= (389.76 \times 1000)\ \mathrm{litres}$
$= 389760\ \mathrm{litres}$
[1 mark]

Area of the sheet that required to make the cistern
= Total surface area of the cistern

We know that total surface area of cuboid
$= 2(lb + bh + hl)$
[0.5 mark]

$= 2(11.2 \times 6 + 6 \times 5.8 + 5.8 \times 11.2)$
$= 2(67.2 + 34.8 + 64.96)$
$= 333.92\ \mathrm{m}^2$
[1 mark]

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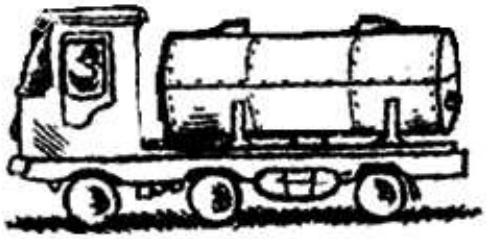
7. A milk tank is in the form of a cylinder whose radius is 1.5 m and length is 7 m. Find the quantity of milk in litres that can be stored in the tank.



[3 marks]

Solution:
Given : Radius of cylindrical tank $(r) = 1.5$ m
Height of cylindrical $(h) = 7$ m
Volume of cylindrical tank = $\pi r^2 h$
[0.5 mark]

$= \frac{22}{7} \times 1.5 \times 1.5 \times 7$
$= 49.5$ m^3
$= 49.5 \times 1000$ litres
[1 m^3 $= 1,000$litres]
$= 49,500$ litres

Hence, the quantity of milk that can be stored in the tank is $49,500$ litres.
[2.5 marks]

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8. A swimming pool is $200\ m \times 50\ m$ and has an average depth of 2m. By the end of a summer day, the water level drops by 2 cm. How many cubic metres of water is lost on the day?
[3 marks]

Dimensions of swimming pool are $200\ m \times 50\ m$
Average depth of the swimming pool = 2 m
At the end of summer day the water level drops by 2 cm
[0.5 mark]
Volume of water in swimming pool $= Length \times Breadth \times Depth$
$= 200 \times 50 \times 2 = 20000\ m^3$
[0.5 mark]
If water level drops by 2 cm it means new level of water
$= \left(2 - \frac{2}{100}\right) m = 198m \qquad \left[1\ cm = \frac{1}{100}m\right]$
Volume of water after summer day $= 200 \times 50 \times 198 = 19800\ m^3$
[1 marks]
So water in cubic metres was lost on that day
= Initial volume - Volume after summer day
$= 20000 - 19800 = 200\ m^3$
[1 mark]

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