Geometry

The cuboid:

Lateral area = base perimeter x height = (L +W) x 2 x H

Total surface area = lateral area + base area x 2

= (L +W) x 2 x H + L x W x 2

= (LW + WH + LH) x 2

The volume = length x width x height = L x W x H

The cube:

The area of one face = L x L = L^2

The lateral area = face area x 4 = L x L x 4 = $4L^2$

The total area = face area x 6 = L x L x 6 = $6L^2$

The volume = L x L x L = L^3

The circle:

The circumference of the circle = $2\pi r$

The area of the circle = πr^2

The sphere:

The lateral area of a sphere = $4\pi r^2$

The volume of the sphere = $\frac{4}{3} \prod r^3$

The right circular cylinder:

The lateral area of the cylinder = $2\pi r h$

The total area of the cylinder = L.A + B.A x 2 = $2\pi r h + 2\pi r^2$

The volume of the cylinder = B.A x h = $\pi r^2 h$

[1] Complete each of the following:

(a) The lateral area of a cuboid = ……..

(b) The edge length of a cube is 4 Cm, then its total area = ... Cm^2

(c) The volume of the cube is $64Cm^3$, then its total area = ... Cm^2

(d) A cuboid whose dimension are $\sqrt{2}$, $\sqrt{3}$ and $\sqrt{6}$ Centimeter . its volume = …….. Cm^3

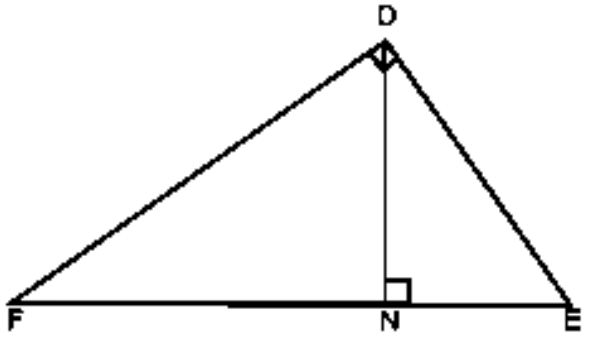
(e) The radius length of the right circular cylinder whose volume 40π Cm^3 and its height 10 Cm = …….. Cm

(f) The edge length of the cube whose volume $2\sqrt{2}$ Cm^3 = ... Cm

(g) The volume of a sphere its radius 6 Cm = …… Cm^3

[2] In the opposite figure: EDF is right angle at D, $\overline{DN} \perp \overline{EF}$

DE = 3cm, DF = 4 cm, Complete:



(a) $(DN)^2$ = EN x ……

(b) $(DF)^2$ = FE x …….

(c) The projection of $\overline{ED}$ on $\overleftrightarrow{EF}$ is …….

(d) Δ EDF ~ Δ ……. ~ Δ ……...

(e) The perimeter of Δ DEN : Perimeter of Δ FDN = ……. : ……

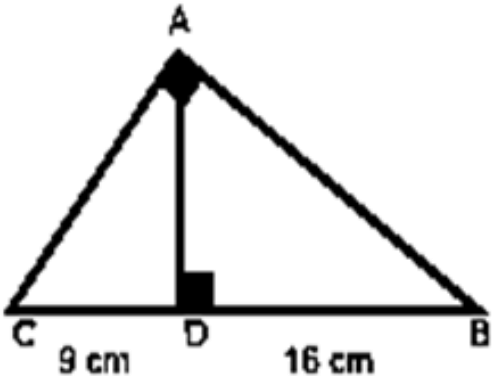
[3] In the opposite figure:

Δ ABC is a right angled triangle at A in which

$\overline{AD} \perp \overline{BC}$, BD = 16 cm, CD = 9 cm

Find the lengths of $\overline{AB}$, $\overline{AC}$, $\overline{AD}$

Calculate the area of Δ ABC



Geometry

[1] Complete each of the following:

(a) base perimeter x height = (L +W) x 2 x H

(b) L x L x 6 = $6L^2$

(c) Edge length = $\sqrt[3]{64}$ = 4 Cm

The total area = $6L^2$ = 6 x 16 = 96 Cm^2

(d) Volume of the cuboid = L x W x H = $\sqrt{2} \times \sqrt{3} \times \sqrt{6} = \sqrt{36}$ = 6 cm^3

(e) The volume of the cylinder = $\pi r^2 h = 40\pi$

$$\pi r^2 h = 40\pi$$

$$r^2 \times 10 = 40$$

$r^2 = 4$ $\qquad$ $r = 2$ cm

(f) Volume of a cube = $2\sqrt{2} = \sqrt{2} \times \sqrt{2} \times \sqrt{2}$

Edge length of a cube = $\sqrt{2}$ Cm

(g) Volume of a sphere = $\frac{4}{3}\pi r^3 = \frac{4}{3} \times \pi \times 216 = 288\pi$ Cm^3

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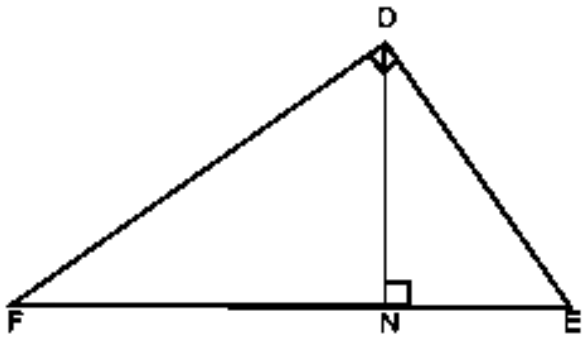
[2] In the opposite figure: EDF is right angle at D, $\overline{DN} \perp \overline{EF}$

DE = 3cm, DF = 4 cm, Complete:



(a) $(DN)^2$ = EN x ……

(b) $(DF)^2$ = FE x …….

(c) The projection of $\overline{ED}$ on $\overleftrightarrow{EF}$ is …….

(d) Δ EDF ~ Δ ……. ~ Δ ……...

(e) The perimeter of Δ DEN : Perimeter of Δ FDN = ……. : ……

Solution

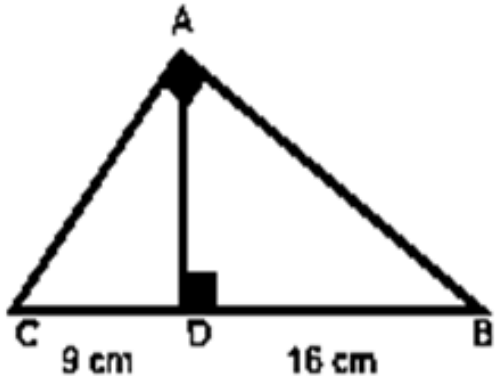
(a) $(DN)^2$ = EN x **NF** (b) $(DF)^2$ = FE x **FN**

(c) The projection of $\overline{ED}$ on $\overleftrightarrow{EF}$ is **EN**

(d) Δ EDF ~ Δ **END** ~ Δ **DNF**

(e) The perimeter of Δ DEN : Perimeter of Δ FDN = **3 : 4**

[3] In the opposite figure:



Δ ABC is a right angled triangle at A in which

$\overline{AD} \perp \overline{BC}$, BD = 16 cm, CD = 9 cm

Find the lengths of $\overline{AB}$, $\overline{AC}$, $\overline{AD}$

Calculate the area of Δ ABC

Solution

In Δ ABC: m($\angle$ BAC) = 90^0, $\overline{AD} \perp \overline{BC}$

$(AB)^2$ = BD x BC = 16 x 25 = 400 AB = $\sqrt{400}$ = 20 cm

$(AC)^2$ = CD x BC = 9 x 25 = 225 AC = $\sqrt{225}$ = 15 cm

$$AD = \frac{AB \times AC}{BC} = \frac{20 \times 15}{25} = 12 \text{ cm}$$