WS-3 6th foundation

Tbasic

① Given $r = 1\ m$

Area of circle $A = \pi r^2$

$= \pi (1)^2$

$= \pi\ m^2$

② Given $l = 30\ m$; $b = 5m$

Perimeter $= 2(l+b)$

$= 2(30+5)$

$= 2 \times 35$

$= 70\ m$

③ Given

$h = 10\ m$; $b = 5\ m$

Area of triangle $= \frac{1}{2} \times$ base $\times$ height

$= \frac{1}{2} \times 5 \times 10$

$= 25\ m^2$

④ let $a = 2m$, $b = 4m$

$c = x\ m$

Perimeter $P = 12m$

we know $P = a+b+c$

$\Rightarrow 12 = 2+4+x$

$\Rightarrow 12 = 6+x$

$\Rightarrow x = 6\ m$

⑤ Given $l = 15m$; $b = 2m$

Area of Rectangle $= l \times b$

$= 15 \times 2$

$= 30\ m^2$

⑥ Given

$a = 2m$; $b = 6m$; $c = 8m$

Semi perimeter $= \frac{a+b+c}{2}$

$= \frac{2+6+8}{2}$

$= \frac{16}{2} = 8\ m$

(7)

base = 30m ; Area = 90 m^2

Area of triangle = $\frac{1}{2}$ × base × height

$\Rightarrow \frac{90}{3} = \frac{1}{2} \times 30 \times h$

$\Rightarrow 3 = \frac{1}{2} h \Rightarrow h = 6\ m$

(13)

(8)

Given

$r_1 = 2m, \quad r_2 = 4m$

$$\frac{A_1}{A_2} = \frac{\pi r_1^2}{\pi r_2^2} = \left[\frac{r_1}{r_2}\right]^2 = \left[\frac{2}{4}\right]^2 = \frac{1}{4}$$

(9)

We know Diameter $D = 2r$

As radius same then the diameters also same

(10)

$l = 4m$

For a square Diagonal = $\sqrt{2}$ × Side length

$= \sqrt{2} \times 4 = 4\sqrt{2}\ m$

(11)

(B) Area of sphere = $4\pi r^2$

= 4 [Area of circle]

(C) If side length = $2a$ $\therefore$ Area = $(\text{Side})^2$

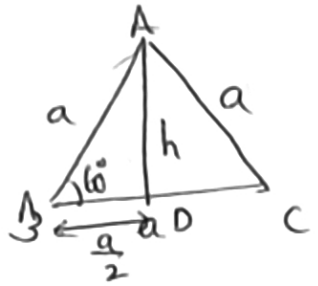
$= (2a)^2 = 4a^2$

(12)

Perimeter $P = 2(l+b)$

$\Rightarrow \frac{P}{2} = l+b \Rightarrow b = \frac{P}{2} - l.$

(13)



Base (BC) = 'a

height AD = 'BD tan60°

$= \frac{a}{2}\sqrt{3}$

Area of triangle = $\frac{1}{2} \times$ base $\times$ height

$= \frac{1}{2} \times a \times \frac{\sqrt{3}}{2} a = \frac{\sqrt{3}}{4} a^2$

(14)

$r = k$ m.

$r' = 2k$ Area of sphere $= 4\pi (r')^2 = 4\pi (2k)^2$

$= 16\pi k^2$

If $r' = 4k$ Area of sphere $= 4\pi (r')^2 = 4\pi (4k)^2$

$= 64\pi k^2$

(15)

$r_1 = 2m$; $r_2 = 1m$

$A_1 - A_2 = \pi r_1^2 - \pi r_2^2$

$= \pi (2^2 - 1^2)$

$= \pi (4-1)$

$= 3\pi$

(16) $P_1 = 8\pi$; $P_2 = 6\pi$

$P_1 - P_2 = 8\pi - 6\pi$

$\Rightarrow 2\pi r_1 - 2\pi r_2 = 2\pi$

$\Rightarrow 2\pi (r_1 - r_2) = 2\pi$

$\Rightarrow r_1 - r_2 = 1m$

(17)

$r = 5m$ $\therefore \frac{\text{Area}}{\text{Perimeter}} = \frac{\pi r^2}{2\pi r} = \frac{r}{2} = \frac{5}{2}$

D

L Task

SAQ's

(1)

Given $a = 3m$; $b = 4m$

$c = 5m$

Perimeter $= a + b + c$

$= 3 + 4 + 5$

$= 12m$

(2)

Given $l = 15m$; $b = 2m$

Area $= l \times b$

$= 15 \times 2$

$= 30m^2$

(3)

$r = 2m$.

Area of sphere $= 4\pi r^2$

$= 4\pi (2)^2$

$= 16\pi$

(4)

Side $= 5m$.

Perimeter of square

$= 4 \times$ side

$= 4 \times 5$

$= 20m$

(5)

base $= 5m$; Area $= 50m^2$

Area of triangle $= \frac{1}{2} \times$ base $\times$ height

$\Rightarrow 50 = \frac{1}{2} \times 8 \times h$

$\Rightarrow 10 = \frac{1}{2} h$

$\Rightarrow h = 20m$

(6)

Area of sphere $= 16\pi m^2$

$\Rightarrow 4\pi r^2 = 16\pi$

$\Rightarrow r^2 = 4$

$\Rightarrow r = \sqrt{4}$

$\Rightarrow r = 2m$

2/x = 2/5

(7)

Side = 2m

Area of an equilateral triangle = $\frac{\sqrt{3}}{4} a^2$

$= \frac{\sqrt{3}}{4} \times 2^2$

$= \sqrt{3}\ m^2$

(8)

Given $A_1 = 4\pi$; $A_2 = 100\pi$

$\therefore \frac{A_1}{A_2} = \frac{\pi r_1^2}{\pi r_2^2}$

$\Rightarrow \frac{4\pi}{100\pi} = \left[\frac{r_1}{r_2}\right]^2$

$\Rightarrow \frac{1}{25} = \left[\frac{r_1}{r_2}\right]^2$

$\Rightarrow \frac{r_1}{r_2} = \frac{1}{5}$

(9)

Given

$l = 3m$; $b = 4m$

length of diagonal = $\sqrt{l^2+b^2}$

$= \sqrt{3^2+4^2}$

$= \sqrt{9+16} = \sqrt{25}$

$= 5m$

(10)

$S_1 = 2S_2$

Perimeter $P = 3 \times$ Side

$\frac{P_1}{P_2} = \frac{\text{Side}_1}{\text{Side}_2} = \frac{2S_2}{S_2} = \frac{2}{1}$

(12)

(a) For side 'a' Perimeter = 4a

(b) $r = 3m$; Area $= 4\pi r^2$

$= 4\pi(3)^2$

$= 36\pi$

(13)

Given $l = 2m$; $b = 6m$

Perimeter $= 2(l+b)$

$= 2(2+6)$

$= 16m$

(14)

$l = 6m$; $P = 20m$

Perimeter $= 2(l+b)$

$\Rightarrow 20 = 2(6+b)$

$\Rightarrow 10 = 6+b$

$\Rightarrow b = 4m$

(16)

$l = 2m$; $b = 0.05$

Area $= l \times b$

$= 2 \times 0.05$

$= 0.1\ m^2$

$= 10 \times 10^{-2}\ m^2$

(15)

$b_1 = 5m$; $l_1 = 10m$

$b_2 = 10m$; $l_2 = 20m$

$P_2 - P_1 = 2(l_2 + b_2) - 2(l_1 + b_1)$

$= 2[(10+20) - (5+10)]$

$= 2[30 - 15]$

$\Rightarrow 30\ m$

(17)

base = 20 m ; height = 10m

Area of triangle $= \frac{1}{2} \times$ base $\times$ height

$= \frac{1}{2} \times 20 \times 10$

$= 100\ m^2$

(18)

$r = 4m$

Perimeter $= 2\pi r$

$= 2 \times \pi \times 4$

$= 8\pi\ m$

(19)

radius $r = 3m$

Area of sphere $= 4\pi r^2$

$= 4\pi (3)^2$

$= 36\pi\ m^2$.

(20)

$Side_1 = 5\ m$

$Side_2 = 10\ m$

$P_1 = 4\ Side_1$

$P_2 = 4\ Side_2$

Change in Perimeter $= P_2 - P_1$

$= 4\ Side_2 - 4\ Side_1$

$= 4[Side_2 - Side_1]$

$= 4[10 - 5]$

$= 4[5] = 20m$