

WS-3 6th foundation

T basic

①

①

Given $r = 1 \text{ m}$

$$\begin{aligned}\text{Area of circle } A &= \pi r^2 \\ &= \pi (1)^2 \\ &= \pi \text{ m}^2\end{aligned}$$

②

Given $l = 30 \text{ m}; b = 5 \text{ m}$

$$\begin{aligned}\text{Perimeter} &= 2(l+b) \\ &= 2(30+5) \\ &= 2 \times 35 \\ &= 70 \text{ m}\end{aligned}$$

③

Given

$h = 10 \text{ m}; b = 5 \text{ m}$

$$\begin{aligned}\text{Area of triangle} &= \frac{1}{2} \times \text{base} \times \text{height} \\ &= \frac{1}{2} \times 5 \times 10 \\ &= 25 \text{ m}^2\end{aligned}$$

④

Let $a = 2 \text{ m}; b = 4 \text{ m}$

$C = x \text{ m}$

Perimeter $P = 12 \text{ m}$

we know $P = a + b + c$

$$\Rightarrow 12 = 2 + 4 + x$$

$$\Rightarrow 12 = 6 + x$$

$$\Rightarrow x = 6 \text{ m}$$

⑤

Given $l = 15 \text{ m}; b = 2 \text{ m}$

$$\begin{aligned}\text{Area of Rectangle} &= l \times b \\ &= 15 \times 2 \\ &= 30 \text{ m}^2\end{aligned}$$

⑥

Given

$a = 2 \text{ m}; b = 6 \text{ m}; c = 8 \text{ m}$

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

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

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

(7)

$$\text{base} = 30 \text{ m} \quad ; \quad \text{Area} = 90 \text{ m}^2$$

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

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

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

(8)

Given

$$r_1 = 2 \text{ m}, \quad r_2 = 4 \text{ m}$$

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

(9)

We know Diameter $D = 2r$

As radius same then the diameters also same

(10)

$$d = 4 \text{ m}$$

For a square Diagonal $= \sqrt{2} \times \text{side length}$

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

(11)

(B)

$$\text{Area of sphere} = 4\pi r^2$$

$$= 4 [\text{Area of circle}]$$

(C)

$$\text{if side length} = 2a \quad \therefore \text{Area} = (\text{side})^2$$

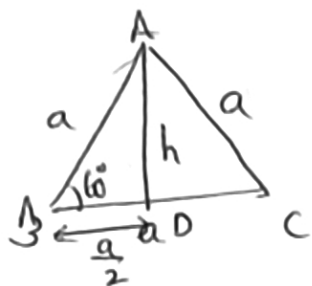
$$= (2a)^2 = 4a^2$$

(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 tan 60°'
 $= \frac{a}{2} \sqrt{3}$

Area of triangle = $\frac{1}{2} \times \text{base} \times \text{height}$
 $= \frac{1}{2} \times a \times \frac{\sqrt{3}}{2} a = \frac{\sqrt{3}}{4} a^2$

(14)

$r = k \text{ m.}$

$r' = 2k$ 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)

$r_1 = 2 \text{ m}; r_2 = 1 \text{ m}$

$$\begin{aligned} A_1 - A_2 &= \pi r_1^2 - \pi r_2^2 \\ &= \pi(2^2 - 1^2) \\ &= \pi(4 - 1) \\ &= 3\pi \end{aligned}$$

(16)

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

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

$$\begin{aligned} \Rightarrow 2\pi r_1 - 2\pi r_2 &= 2\pi \\ \Rightarrow 2\pi(r_1 - r_2) &= 2\pi \\ \Rightarrow r_1 - r_2 &= 1 \text{ m} \end{aligned}$$

(17)

$$r = 5 \text{ m}$$

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

LTASK
SAG

①

$$\text{Given } a = 3 \text{ m}; b = 4 \text{ m}$$

$$c = 5 \text{ m}$$

$$\text{Perimeter} = a + b + c$$

$$= 3 + 4 + 5$$

$$= 12 \text{ m}$$

②

$$\text{Given } l = 15 \text{ m}; b = 2 \text{ m}$$

$$\text{Area} = l \times b$$

$$= 15 \times 2$$

$$= 30 \text{ m}^2$$

③

$$r = 2 \text{ m.}$$

$$\text{Area of sphere} = 4\pi r^2$$

$$= 4\pi (2)^2$$

$$= 16\pi$$

④

$$\text{Side} = 5 \text{ m.}$$

$$\text{Perimeter of square}$$

$$= 4 \times \text{side}$$

$$= 4 \times 5$$

$$= 20 \text{ m}$$

⑤

$$\text{base} = 5 \text{ m}; \text{Area} = 50 \text{ m}^2$$

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

$$\Rightarrow \frac{10}{2} = \frac{1}{2} \times 8 \times h$$

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

$$\Rightarrow h = 20 \text{ m}$$

⑥

$$\text{Area of sphere} = 16\pi \text{ m}^2$$

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

$$\Rightarrow r^2 = 4$$

$$\Rightarrow r = \sqrt{4}$$

$$\Rightarrow r = 2 \text{ m}$$

$$\frac{2}{2} = \frac{2}{2}$$

(3)

(7)

Side = 2 m

Area of an equilateral

$$\text{triangle} = \frac{\sqrt{3}}{4} a^2$$

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

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

(9)

Given

$$l = 3 \text{ m}; b = 4 \text{ m}$$

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

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

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

$$= 5 \text{ m}$$

(12)

(a)

For side 'a' Perimeter = 4a

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

$$= 4\pi (3)^2$$

$$= 36\pi$$

(13)

Given $l = 2 \text{ m}; b = 6 \text{ m}$

$$\text{Perimeter} = 2(l + b)$$

$$= 2(2 + 6)$$

$$= 16 \text{ m}$$

(8)

Given

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

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

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

$$\Rightarrow \frac{1}{25} = \left(\frac{r_1}{r_2}\right)^2$$

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

(10)

$$S_1 = 2 S_2$$

Perimeter $p = 3 \text{ Side}$

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

(14)

$$l = 6 \text{ m}; P = 20 \text{ m}$$

$$\text{Perimeter} = 2(l + b)$$

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

$$\Rightarrow 10 = 6 + b$$

$$\Rightarrow b = 4 \text{ m}$$

(16)

$$l = 2 \text{ m}; b = 0.05$$

$$\text{Area} = l \times b$$

$$= 2 \times 0.05$$

$$= 0.1 \text{ m}^2$$

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

(15)

$$b_1 = 5 \text{ m}; l_1 = 10 \text{ m}$$

$$b_2 = 10 \text{ m}; l_2 = 20 \text{ m}$$

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

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

$$= 2[30 - 15]$$

$$\Rightarrow 30 \text{ m}$$

(17)

$$\text{base} = 20 \text{ m}; \text{height} = 10 \text{ m}$$

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

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

$$= 100 \text{ m}^2$$

(18)

$$r = 4 \text{ m}$$

$$\text{Perimeter} = 2\pi r$$

$$= 2 \times \pi \times 4$$

$$= 8\pi \text{ m}$$

(19)

$$\text{radius } r = 3 \text{ m}$$

$$\text{Area of sphere} = 4\pi r^2$$

$$= 4\pi (3)^2$$

$$= 36\pi \text{ m}^2$$

(20)

$$\text{Side}_1 = 5 \text{ m}$$

$$\text{Side}_2 = 10 \text{ m}$$

$$P_1 = 4 \text{ Side}_1$$

$$P_2 = 4 \text{ Side}_2$$

$$\text{Change in Perimeter} = P_2 - P_1$$

$$= 4 \text{ Side}_2 - 4 \text{ Side}_1$$

$$= 4 [\text{Side}_2 - \text{Side}_1]$$

$$= 4 [10 - 5]$$

$$= 4 [5] = \underline{20 \text{ m}}$$