

$$\underline{\underline{Q.1}} \Rightarrow 45^\circ \longrightarrow \frac{\pi}{4}$$

$$180^\circ \longrightarrow \pi^R$$

$$45^\circ \longrightarrow \frac{\pi}{180} \times 45 \\ = \frac{\pi}{4}$$

$$\underline{\underline{Q.2}} \Rightarrow \sin(120^\circ) = \frac{\sqrt{3}}{2}$$

$$\underline{\underline{Q.3}} \Rightarrow f(x) = x^2 + 3 \\ f(0) = 3$$

$$\begin{aligned}\underline{\underline{Q.4}} \Rightarrow V &= \frac{4}{3} \pi r^3 \\ &= \frac{4}{3} \times \pi \times 3^3 \\ &= 36\pi \text{ m}^3\end{aligned}$$

$$\underline{\underline{Q.5}} \Rightarrow \frac{d8}{dx} = 0$$

$$\underline{\underline{Q.6}} \Rightarrow \frac{d\sqrt{x}}{dx} = \frac{1}{2\sqrt{x}}$$

$$\underline{\underline{Q.7}} \Rightarrow \frac{d 3x^2}{dx} = 3 \frac{dx^2}{dx} = 6x$$

$$\underline{\underline{Q.8}} \Rightarrow y = x^4 + 12x$$

$$\frac{dy}{dx} = 4x^3 + 12$$

$$\underline{\underline{Q.9}} \Rightarrow \frac{d(\sin x)}{dx} = \cos x$$

Q.10 $\Rightarrow \frac{d\sqrt{x^2+1}}{dx} = \frac{1}{2\sqrt{x^2+1}} \cdot (2x+0)$

$= \frac{x}{\sqrt{x^2+1}}$

Q.11 $\Rightarrow \sin 300 = -\frac{\sqrt{3}}{2}$

Q.12 $= \sin(180+30) = -\sin 30 = \underline{\underline{-\frac{1}{2}}}$

$$\underline{\underline{Q.13}} \Rightarrow \cos(225) = -\frac{1}{\sqrt{2}}$$

$$\underline{\underline{Q.14}} \Rightarrow \cos(-45) = \frac{1}{\sqrt{2}}$$

$$\underline{\underline{Q.15}} \Rightarrow |x+1| = 3$$

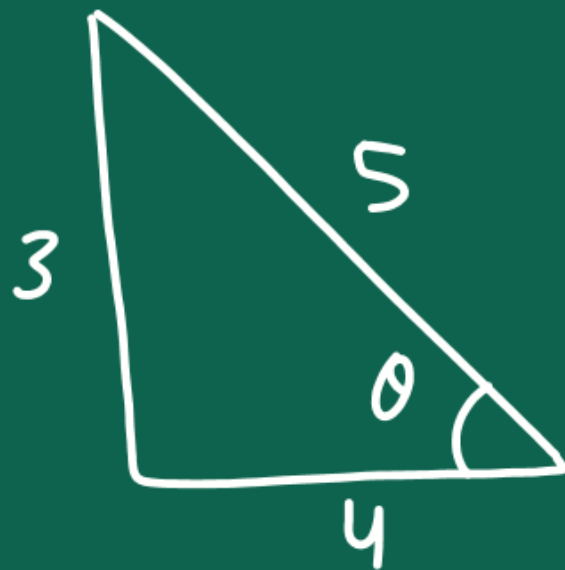
$$x = 2 \text{ \& } -4$$

Q.16 \Rightarrow

$$\frac{\log \sqrt{12}}{\log 12} = \frac{\log (12)^{1/2}}{\log 12} = \frac{1}{2} \frac{\cancel{\log 12}}{\cancel{\log 12}}$$

$$= \frac{1}{2}$$

Q.17 \Rightarrow



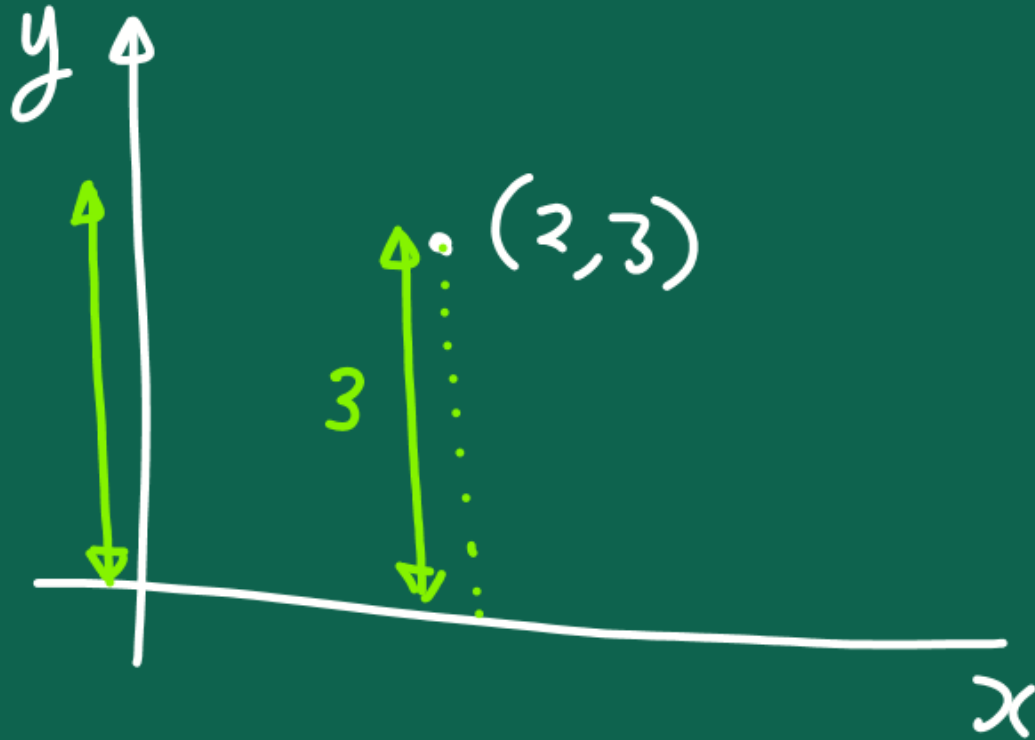
$$\sin \theta = \frac{3}{5}$$

Q.18 \Rightarrow

$$4 \longrightarrow 12L$$

$$3 \longrightarrow \frac{12}{4} \times 3 = \underline{\underline{9L}}$$

Q.19 \Rightarrow

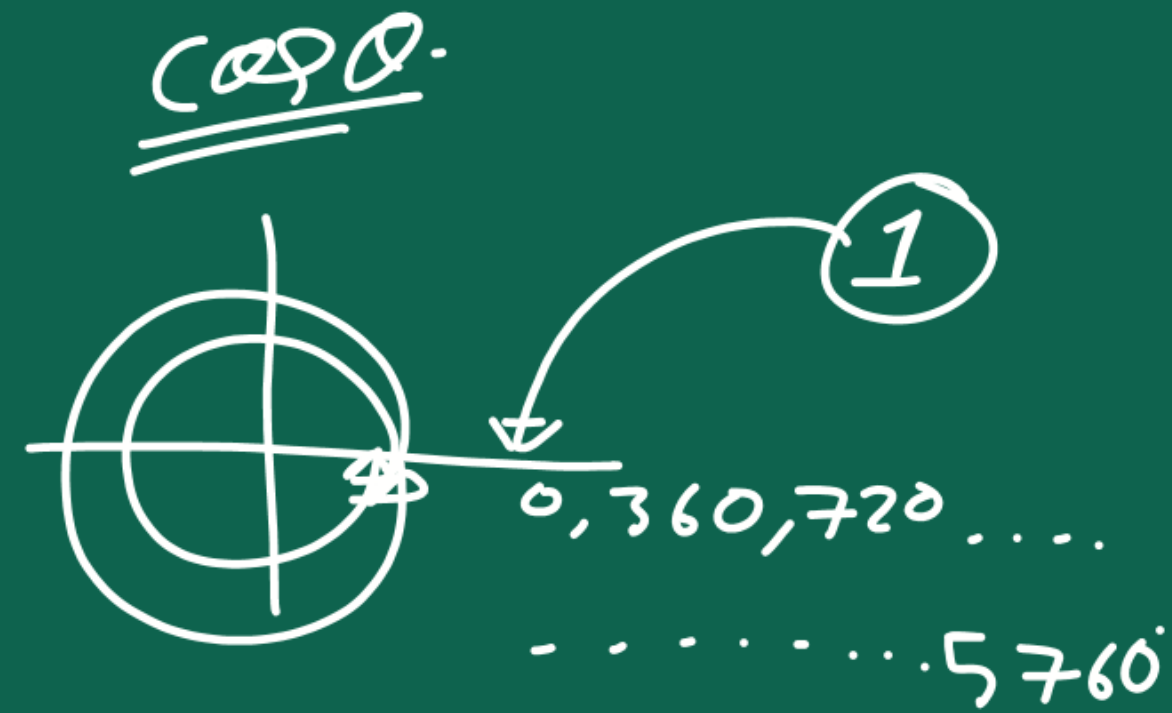


$$\underline{\underline{Q.20}} \Rightarrow [D] \checkmark$$

$$\underline{\underline{Q.21}} \Rightarrow \cos(5760^\circ)$$

$$\underline{\underline{Q.22}} \Rightarrow \checkmark$$

$$\underline{\underline{Q.23}} \Rightarrow (1,1) \quad (5,4)$$



$$d = \sqrt{(5-1)^2 + (4-1)^2}$$

$$d = 5$$

Q.24 $\Rightarrow \sin(-90) = -1$

Q.25 $\Rightarrow y = 9 - \underbrace{(x-3)^2}_{\text{Zero.}}$

$y_{\max} = 9$ if $x = 3$

Q.26 \Rightarrow

$$y = 2x + 5$$

$$\text{if } x = 1$$

$$y = 7$$

Q.27 \Rightarrow

$$y = 3x + 5$$

$$y = mx + c$$

$$\underline{\underline{m = 3}}$$

$$\underline{\underline{Q.28}} \Rightarrow \cos 120^\circ = -\frac{1}{2}$$

$$\underline{\underline{Q.29}} \Rightarrow |x| = 4$$

$$x = +4 \text{ \& } -4$$

$$\underline{\underline{Q.30}} \Rightarrow y = ax^2 + bx + c$$

Integration

$$\frac{d}{d} \quad \int$$

$$+ \quad -$$

$$\times \quad \div$$

Q.1 \Rightarrow

$$\int 7x^6 dx$$

$$= 7 \int x^6 dx$$

$$= 7 \times \frac{x^{6+1}}{6+1} + C$$

$$= x^7 + C$$

$$\int x^n dx = \frac{x^{n+1}}{n+1} + C$$

$$\frac{d(x^7 + C)}{dx} = 7x^6 + 0$$
$$= 7x^6$$

$$\int x^3 dx = \frac{x^4}{4} + C$$

$$\begin{aligned}\int \frac{1}{x^3} dx &= \int x^{-3} dx \\ &= \frac{x^{-3+1}}{-3+1} + C \\ &= \frac{x^{-2}}{-2} + C\end{aligned}$$

$$\int x^n dx = \frac{x^{n+1}}{n+1} + C$$

$$\frac{d\left(\frac{x^4}{4} + C\right)}{dx} = x^3$$

$$\frac{d\left(\frac{x^{-2}}{-2} + C\right)}{dx} = x^{-3} = \frac{1}{x^3}$$

$$\int \frac{1}{x} dx = \ln x + c$$

$$\int x^n dx = \begin{cases} \frac{x^{n+1}}{n+1} + c & n \neq -1 \\ \ln x + c & n = -1 \end{cases}$$

$$\int \sin x dx = -\cos x + c$$

$$\int \cos x dx = \sin x + c$$

$$\int \sec^2 x dx = \tan x + c$$

$$\int e^x dx = e^x + c$$

$$\int \frac{1}{x+1} dx = \ln(x+1) + c$$

$$\frac{d \ln(x+1)}{d(x+1)} \times \frac{d(x+1)}{dx}$$

$$= \frac{1}{x+1} \cdot (1+0)$$

$$= \frac{1}{x+1}$$

$$\int \frac{2x}{x^2+4} dx = \ln(x^2+4) + c$$

$$\int \frac{f'}{f} dx = \ln(f) + c$$

$$\frac{d \ln(x^2+4)}{d(x^2+4)} \cdot \frac{d(x^2+4)}{dx}$$

$$= \frac{1}{x^2+4} \cdot (2x+0)$$

$$= \frac{2x}{x^2+4}$$

$$\int_1^2 x^2 dx = \left[\frac{x^3}{3} \right]_1^2$$

$$= \left[\frac{2^3}{3} - \frac{1^3}{3} \right]$$

$$= \frac{8}{3} - \frac{1}{3}$$

$$= \frac{7}{3}$$

$$\underline{\underline{0}} \Rightarrow \int_0^{90^\circ} \sin x \, dx$$

$$= [-\cos x]_0^{90}$$

$$= [(-\cos 90) - (-\cos 0)]$$

$$= 0 + 1$$

$$= 1$$

=0 \Rightarrow

$$\int_0^1 e^x dx$$

$$= [e^x]_0^1$$

$$= e^1 - e^0$$

$$= e - 1$$

$$= 2.718 - 1$$

$$= 1.718$$