

الف) $\frac{27}{18} = \frac{\pi}{\pi} \rightarrow \frac{3}{2} = \frac{\pi}{\pi} \rightarrow \boxed{n = \frac{3\pi}{2}}$

ب) $\frac{15}{18} = \frac{\pi}{\pi} \rightarrow \frac{5}{6} = \frac{\pi}{\pi} \rightarrow \boxed{n = \frac{5\pi}{6}}$

ج) $\frac{5\pi}{18} = \frac{\pi}{18} \rightarrow \frac{5}{18} = \frac{\pi}{18} \rightarrow \boxed{n = 5}$

د) $\frac{6\pi}{18} = \frac{\pi}{18} \rightarrow \frac{6}{18} = \frac{\pi}{18} \rightarrow \boxed{n = 6}$

$\frac{125a}{9} = \frac{D}{18} \rightarrow \frac{5a}{36} = \frac{D}{18} \rightarrow D = 125a$

$\frac{a\pi}{\pi} = \frac{D}{18} \rightarrow \frac{a}{18} = \frac{D}{18} \rightarrow D = 225a$

$\rightarrow 125a + 225a + 1 \cdot a = 45a = 18 \rightarrow \boxed{a = \frac{2}{5}}$

الف) $(\frac{1}{4} \times \frac{\sqrt{3}}{4}) - (\frac{\sqrt{3}}{4} \times \frac{1}{4}) - 1 + 2 = \frac{\sqrt{3}}{4} - \frac{\sqrt{3}}{4} + 1 = \boxed{1}$

ب) $\frac{(\frac{\sqrt{3}}{4})^2 + (1)^2 + (\sqrt{3})^2}{\sqrt{3} - \frac{\sqrt{3}}{4}} = \frac{\frac{1}{4} + 1 + 3}{\frac{3\sqrt{3}}{4}} = \frac{4 + 3 + 12}{3\sqrt{3}} = \frac{19}{3\sqrt{3}} \times \frac{\sqrt{3}}{\sqrt{3}} = \boxed{\frac{19\sqrt{3}}{9}}$

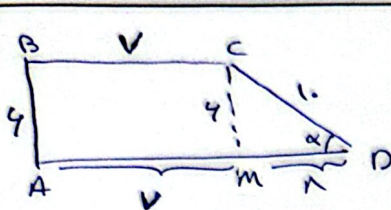
$(-\frac{1}{4} \times \frac{1}{4}) + (\frac{\sqrt{3}}{4} \times \frac{\sqrt{3}}{4}) = -\frac{1}{16} + \frac{3}{16} = \frac{2}{16} = \frac{1}{8} = \sin^2 \theta \rightarrow \theta = 45^\circ$

$\rightarrow \boxed{\tan 45^\circ = 1}$

$\frac{2 \times \frac{\sqrt{3}}{4} (1 - \frac{1}{4})}{(1 - \frac{1}{4})^2} = \frac{\frac{\sqrt{3}}{2}}{\frac{9}{16}} = \frac{8\sqrt{3}}{9} = \sqrt{3} = \tan \theta \rightarrow \theta = 60^\circ \rightarrow \boxed{\text{Rad } \theta = \frac{\pi}{3}}$

$$\frac{3 \frac{\sin \theta}{\cos \theta} - \frac{\cos \theta}{\cos \theta}}{\frac{\sin \theta}{\cos \theta} - \frac{\cos \theta}{\cos \theta}} \xrightarrow{\div \cos \theta} \frac{3 \tan \theta - 1}{\tan \theta - 1} = \frac{12-1}{2-1} = \boxed{11}$$

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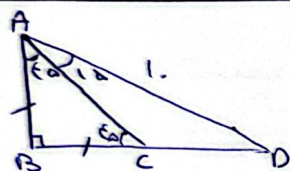


$$\sin \alpha = \frac{4}{1} = \frac{4}{CD} \rightarrow CD = 1$$

$$(MD)^2 = (CD)^2 - (CM)^2 = 100 - 49 = 51 \rightarrow MD = \sqrt{51}$$

$$P_{\text{درخت}} = 4 + \sqrt{51} + 1 + \sqrt{51} + 1 = \boxed{21}$$

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$$\cos \alpha = \frac{1}{1} = \frac{AB}{AD} \rightarrow AB = 2 = BC$$

$$\sin \alpha = \frac{\sqrt{3}}{1} = \frac{BD}{AD} \rightarrow BD = 2\sqrt{3}$$

$$CD = BD - BC \rightarrow \boxed{2\sqrt{3} - 2}$$

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الف) $\odot$

ب) $\odot$

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$$\frac{\sin x}{\cos x} = \frac{1}{4} \rightarrow \cot x = 4 \rightarrow \cot^2 x + 1 = \frac{1}{\sin^2 x} \rightarrow 16 + 1 = \frac{1}{\sin^2 x} \rightarrow \sin^2 x = \frac{1}{17}$$

$$\xrightarrow{\text{positive}} \boxed{\sin x = \frac{1}{\sqrt{17}}}$$

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