

الف)  $\frac{D}{11.0} = \frac{rad}{\pi} \rightarrow \frac{27}{11.0} = \frac{x}{\pi} = x = \frac{27\pi}{11.0} \rightarrow \frac{3\pi}{2}$

-1

ب)  $\frac{125}{11.0} = \frac{x}{\pi} \Rightarrow \frac{125\pi}{11.0} = \frac{25}{4}\pi$

ج)  $\frac{\frac{a}{12}\pi}{\pi} = \frac{x}{11.0} \rightarrow x = \frac{a \times 11.0}{12} = 7a^\circ$

✓

د)  $\frac{\frac{3\pi}{9}}{\pi} = \frac{x}{11.0} \rightarrow \frac{3}{9} = \frac{x}{11.0} \rightarrow x = 11.0^\circ$

$\frac{D}{11.0} = \frac{rad}{\pi} = \frac{G}{r_0} \rightarrow \frac{125}{9} a = \frac{D}{11.0} \rightarrow D = 125.0a$

-2

$\frac{a\pi}{1} = \frac{D}{11.0} \rightarrow D = \frac{11.0a}{1} = 125.0a$   $1.0a + 125.0a + 125.0a = 11.0 \rightarrow 250a = 11.0$   
 $a = \frac{11.0}{250}$

الف)  $\frac{1}{\sqrt{r}} \times \frac{\sqrt{r}}{r} - \frac{\sqrt{r}}{r} \times \frac{1}{\sqrt{r}} - 1 + 2 = 1$

-3

ب)  $\frac{\frac{1}{r} + 1 + r}{\sqrt{r} - \frac{\sqrt{r}}{r}} = \frac{\frac{1+r}{r}}{\frac{r-\sqrt{r}}{r}} = \frac{1+r}{r-\sqrt{r}} = \frac{1+r}{\sqrt{r}} = \frac{1+\sqrt{r}}{r}$

✓

$-\frac{1}{r} \times \frac{1}{r} + \frac{\sqrt{r}}{r} \times \frac{\sqrt{r}}{r} = \sin^2 \theta \Rightarrow -\frac{1}{r} + \frac{r}{r} = \frac{1}{r} = \sin^2 \theta$   $\sin \theta = \pm \frac{1}{\sqrt{r}} = \pm \frac{\sqrt{r}}{r}$   
 $\tan 45^\circ = 1$   $45^\circ = \theta \rightarrow \frac{\sqrt{r}}{r} = \sin \theta$  مربع کرنے پر

-4

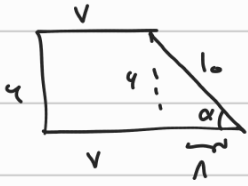
✓

$\frac{\frac{\sqrt{r}}{r} (1 - \frac{1}{r})}{(1 - \frac{1}{r})(1 - \frac{1}{r})} = \frac{\frac{\sqrt{r}}{r}}{\frac{r}{r}} = \sqrt{r} = \tan \theta = \tan 45^\circ \rightarrow \theta = 45^\circ \rightarrow \frac{45^\circ}{11.0} = \frac{rad}{\pi} \rightarrow rad = \frac{\pi}{2}$

-5

$$\tan \theta = 5 \quad \frac{\sin \theta}{\cos \theta} = 5 \rightarrow \sin \theta = 5 \cos \theta \quad \frac{5 \sin \theta - \cos \theta}{\sin \theta - 5 \cos \theta} = \frac{12 \cos \theta - \cos \theta}{5 \cos \theta - 5 \cos \theta} = \frac{11 \cos \theta}{0} = 12 \quad -4$$

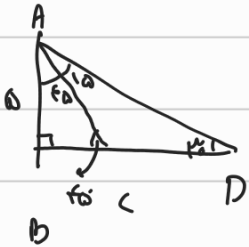
(2) ✓



$$\sin \alpha = \frac{\text{ضلع مقابل}}{\text{م}} = \frac{4}{5}$$

$$(\bar{r})^2 = (\text{ضلع عمودي})^2 + (\text{ضلع افقي})^2 \quad 100 = 4^2 + (\text{ضلع افقي})^2 \Rightarrow \text{ضلع افقي} = 1$$

$$\text{الزمن} P = 4 + 1 + 4 + 1 + 10 = 20 \quad (2) \checkmark$$



$$\sin \alpha = \frac{1}{5} = \frac{AB}{AD} \Rightarrow AB = 5$$

$$(AB)^2 + (BD)^2 = (AD)^2$$

$$25 + (BD)^2 = 100 \rightarrow BD = \sqrt{75} = 5\sqrt{3}$$

$$\sin \angle A = \frac{\sqrt{2}}{5} = \frac{AB}{AC} \Rightarrow \frac{\sqrt{2}}{5} = \frac{5}{AC} \rightarrow AC = 5\sqrt{2} \rightarrow BC = 5$$

(2) ✓

$$AC^2 = BC^2 + AB^2 = 25 = BC^2 + 10 \rightarrow BC = 5 \Rightarrow BC = 5$$

$$BD - BC = CD \rightarrow 5\sqrt{3} - 5$$

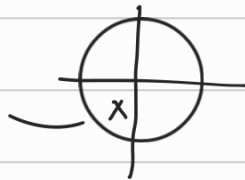
ب. اربع سو

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(2) ✓

$$\tan x = \frac{1}{5}$$

$$\sin x, \cos x$$



$$\tan x = \frac{\sin x}{\cos x} = \frac{1}{5} \Rightarrow \frac{\sin x}{\cos x} = -1 \quad \text{ن. اربع} = -1$$

$$\bar{r} = \sqrt{(-3)^2 + (-1)^2} \rightarrow \bar{r} = \sqrt{10}$$

$$\sin x = \frac{\text{ضلع مقابل}}{\bar{r}} = \sin x = \frac{-1}{\sqrt{10}}$$

(2) ✓

$$= -\frac{\sqrt{10}}{10}$$