

۱۹

(الف) $\frac{rV}{180} = \frac{Rad}{\pi}$ $rV \times \frac{\pi}{180} = \frac{r}{r_0} \pi$	(ب) $\frac{12a}{180} = \frac{Rad}{\pi}$ $12a \times \frac{\pi}{180} = \frac{2a\pi}{36}$ ✓	(ج) $\frac{D}{180} = \frac{\frac{a\pi}{r}}{\pi}$ $D = \frac{180}{\frac{12}{a}} = 15a^\circ$	۱
$\frac{12aa}{180} = \frac{D}{180} \rightarrow D = 12aa^\circ$ $\frac{a\pi}{180} = \frac{a}{180}$ ✓	۱۰۰ ۱۰۰ + ۱۲/۱۰۰ + ۹/۱ = ۱۸۰ ۱۸۰ + ۱۲/۱۰۰ + ۹/۱ = ۱۸۰ ۹/۱ = ۱۸۰ ۹ = ۱۸۰	۲	
(الف) $\frac{1}{2} \times \frac{\sqrt{3}}{2} - \frac{\sqrt{3}}{2} \times \frac{1}{2} - 1 + 2$ $= \frac{\sqrt{3}}{4} - \frac{\sqrt{3}}{4} - 1 + 2 = 1$ ✓	(ب) $\frac{(\frac{1}{\sqrt{3}})^2 + (1)^2 + (\sqrt{3})^2}{\sqrt{3} - \frac{1}{\sqrt{3}}} = \frac{\frac{1}{3} + 1 + 3}{\frac{3-1}{\sqrt{3}}}$ $= \frac{\frac{1+3+9}{3}}{\frac{2}{\sqrt{3}}} = \frac{13\sqrt{3}}{6}$	۳	
$-\frac{1}{2} \times \frac{1}{2} + \frac{\sqrt{3}}{2} \times \frac{\sqrt{3}}{2} = \sin^2 \theta$ $-\frac{1}{4} + \frac{3}{4} = \sin^2 \theta$ $\frac{2}{4} = \frac{1}{2} = \sin^2 \theta$ $\sin \theta = \frac{1}{\sqrt{2}} = \frac{\sqrt{2}}{2} \rightarrow 45^\circ$ ✓	$\tan \theta = \frac{\frac{1}{\sqrt{2}}}{\frac{1}{\sqrt{2}}} = 1$ ✓	۴	
$\frac{2 \left(\frac{1}{\sqrt{3}} \right) \left(1 - \left(\frac{1}{\sqrt{3}} \right)^2 \right)}{\left(1 - \left(\frac{1}{\sqrt{3}} \right)^2 \right)^2} = \tan \theta \rightarrow \frac{\left(\frac{2}{\sqrt{3}} \right) \left(\frac{2}{3} \right)}{\frac{4}{9}} = \frac{\frac{4}{3\sqrt{3}}}{\frac{4}{9}} = \frac{3}{\sqrt{3}} = \sqrt{3}$ tan θ = √3 → θ = π/3 ✓	۱	۵	

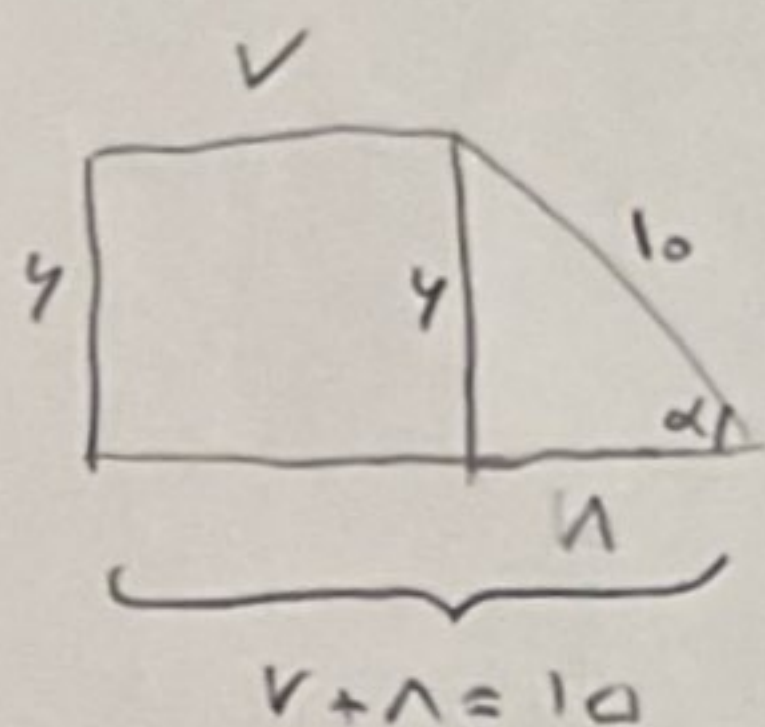
$$\sin \theta = a$$

$$\cos \theta = 1$$

$$\frac{r(a) - 1}{a - 1} = \frac{1f}{1} = \boxed{1f}$$

(2) ✓

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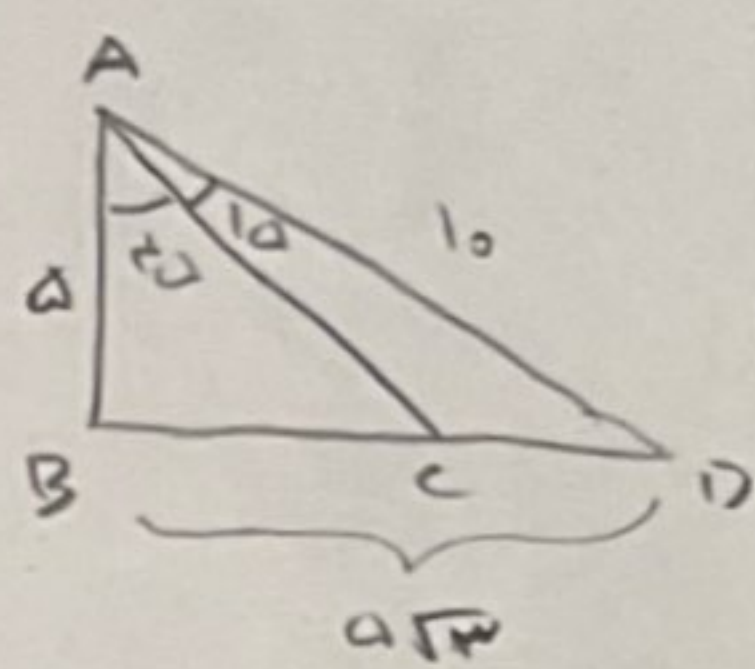
$$\sin \alpha = \frac{4}{5}$$

$$\sqrt{10^2 - 4^2} = \sqrt{96} = 8$$

(2) ✓

$$S = 10 + 4 + 8 = \boxed{22}$$

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$$\angle DAB = 64^\circ + 10^\circ = 74^\circ$$

$$AB = AD \sin 74^\circ = 10 \times \frac{4}{5} = 8$$

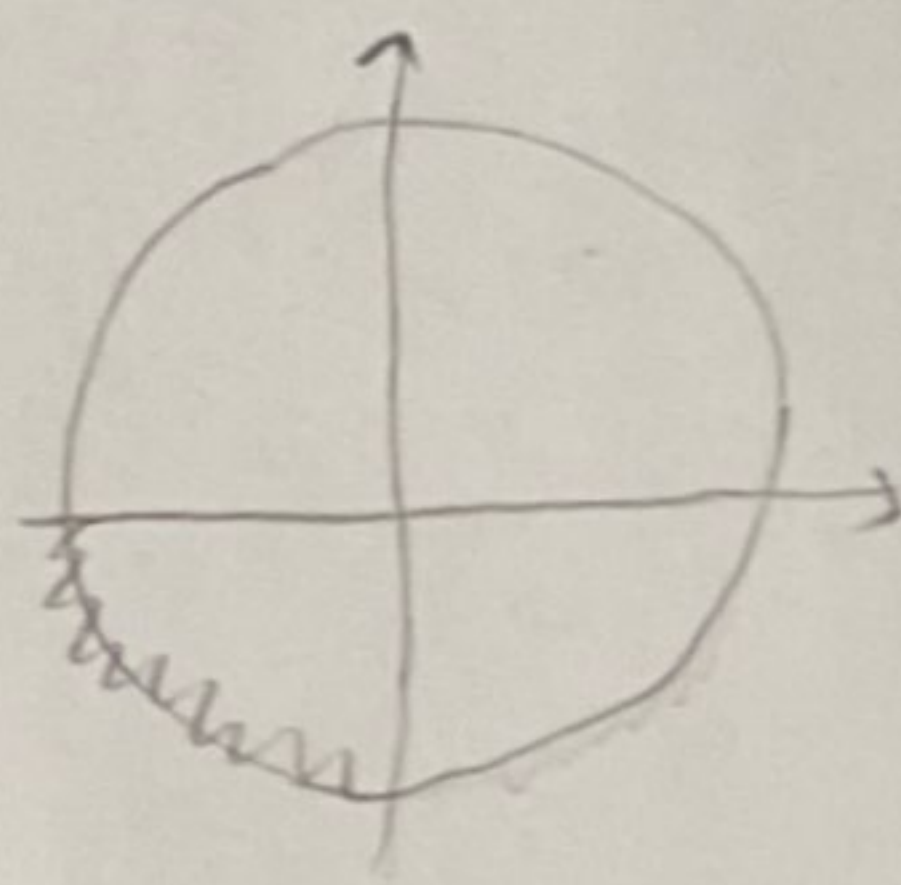
$$BD = AD \sin 74^\circ = 10 \times \frac{4}{5} = 8$$

$$AB = BC \rightarrow BC = 4$$

$$BD = BC + CD \rightarrow CD = BD - BC = \boxed{4 - 4} = \boxed{0}$$

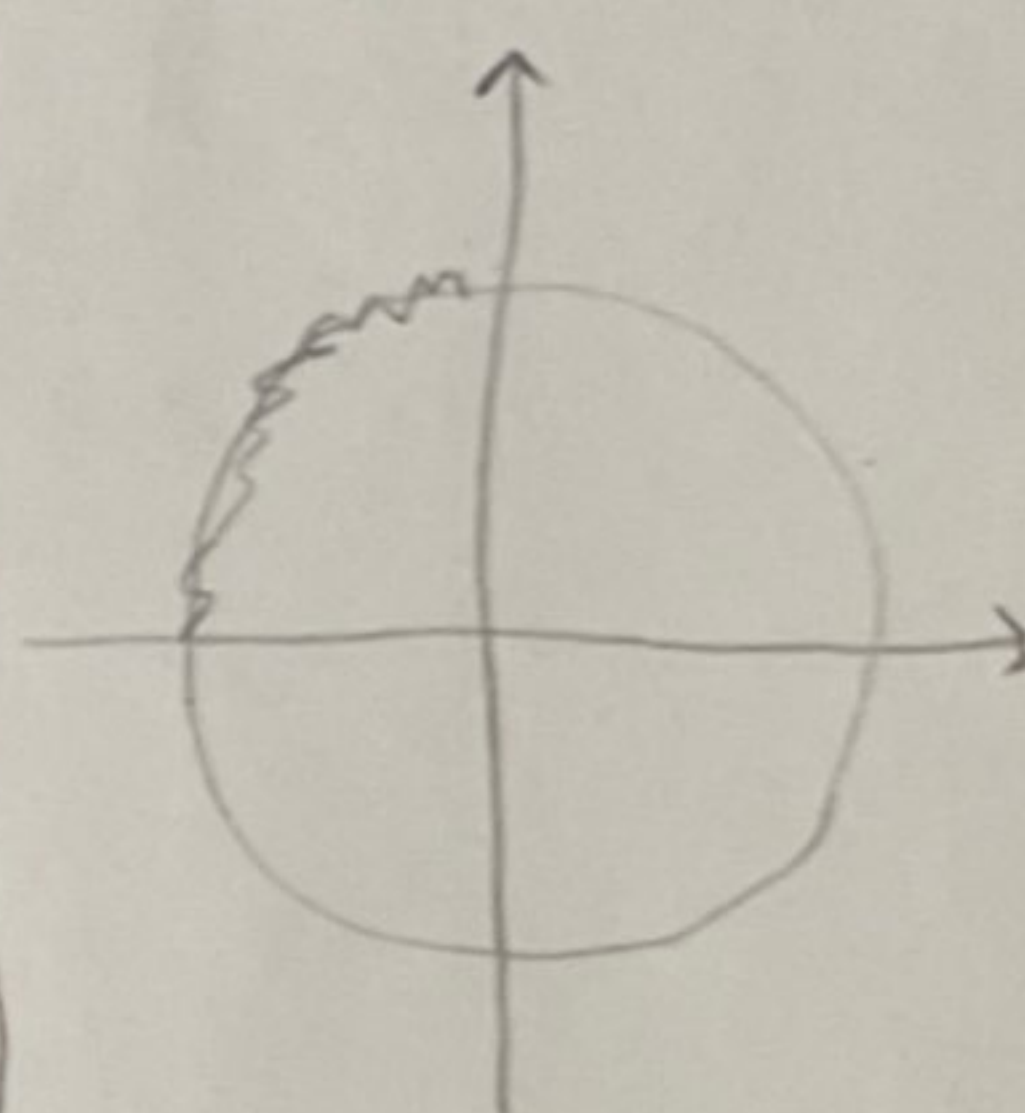
(2) ✓

8



نصف دائرة

(2) ✓



نصف دائرة

9

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

$$\frac{\sin x}{\cos x} = \frac{1}{r}$$

$$\sin x = \frac{1}{r} \cos x$$

(2) ✓

$$\sin^2 x + \cos^2 x = 1$$

$$\left(\frac{1}{r} \cos x\right)^2 + \cos^2 x = 1$$

$$\frac{1}{r^2} \cos^2 x + \cos^2 x = 1$$

$$\frac{1}{r^2} \cos^2 x = 1$$

$$\cos^2 x = \frac{1}{r^2}$$

$$\cos x = \pm \frac{1}{r} \rightarrow \cos x = -\frac{1}{r}$$

$$\sin x = \frac{1}{r} \cos x$$

$$\sin x = \left(\frac{1}{r}\right) \left(-\frac{1}{r}\right) = \boxed{-\frac{1}{r^2}}$$

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