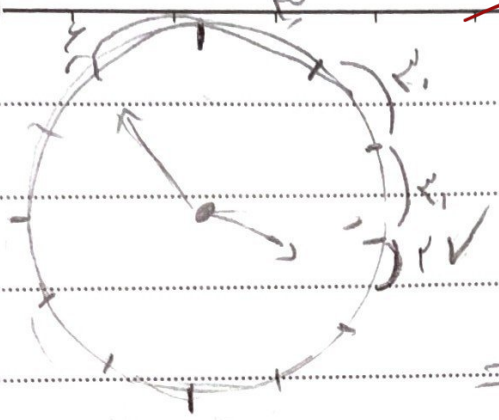
اسم؟ ٥

Date: Subject :

١- الف ١٥٣



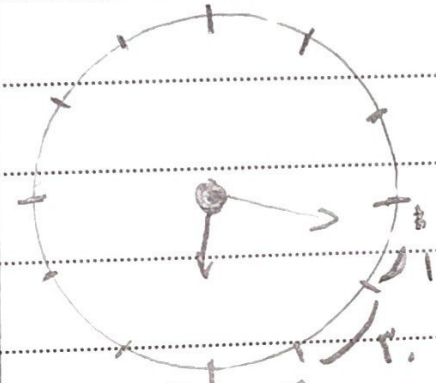
ب) $\alpha = |\omega_0 t - \frac{1}{2}\alpha t^2|$

$= |5 \times 64 - \frac{1}{2} \times 3 \times 3| = 205$

$360 - 205 = 153$

٢

الف) ١٨



ب) $\alpha = |\omega_0 t - \frac{1}{2}\alpha t^2|$

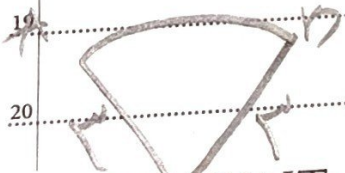
$\alpha = |5 \times 18 - \frac{1}{2} \times 3 \times 6|$

$= 18$

٣-

الف) $S = \frac{\alpha}{2} R^2 = \frac{\pi}{2} \times 9 = \frac{\pi}{4} \times 9 = \frac{9\pi}{4}$

ب)



$A_{\square} = \frac{\pi}{4} \times 4^2 = \frac{\pi}{2}$

$6 + \frac{\pi}{2}$

PARAMOUNT

۴- الف

$S = \frac{1}{۲} \times a \times b \times \sin \hat{A}$

$\frac{1}{۲} \times ۵ \times ۸ \times \frac{\sqrt{۳}}{۲} = ۱۰\sqrt{۳}$

ب

$BC^{۲} = AB^{۲} + AC^{۲} - ۲AB \times AC \times \cos \hat{A}$

$BC^{۲} = ۲۵ + ۶۴ - ۲ \times ۵ \times ۸ \times \cos ۶۰ =$

$۸۹ - ۸۰ \times \frac{1}{۲} = ۸۹ - ۴۰ = ۴۹ \Rightarrow BC = ۷$

$۷ + ۸ + ۵ = \boxed{۲۰}$

ج-

$A + \underbrace{B + C}_{۱۵۰} = ۱۸۰ \qquad A = ۳۰^{\circ}$

$BC = a = ۱۵ \qquad c = AB = ۱۵$

$b = CA = ۱۵\sqrt{۳}$

$\frac{a}{\sin A} = \frac{۱۵}{\sin ۳۰^{\circ}} = \frac{۱۵}{\frac{1}{۲}} = ۳۰$

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$\frac{b}{\sin\beta} = 2R$ $\quad \sin\beta = \frac{b}{2R} = \frac{12\sqrt{2}}{30} = \frac{\sqrt{2}}{2}$

$\Rightarrow \hat{B} = 45 \div \frac{\pi}{4}$

$C = 180 - 45 = 135$ $\quad \frac{180}{180} = \frac{Rad}{\pi}$

$Rad = \boxed{\frac{3\pi}{4}}$ -٤

$\tan(\pi - \alpha) = -\tan\alpha$ $\quad \tan(2\pi - \alpha) = -\tan\alpha$

$2\tan(\pi + \alpha) = 2\tan\alpha$

$\tan(2\pi + \alpha) = \tan\alpha$

$$\frac{-\tan\alpha + 2\tan\alpha}{-\tan\alpha - \tan\alpha} = \frac{2\tan\alpha}{-2\tan\alpha} = -1$$

$\tan\frac{\pi}{4} = 1$ $\quad \frac{\pi}{4}$

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$\frac{\pi}{12} = 15^\circ$ ✓

$\tan(90-15) = \cot 15 = \frac{1}{a}$

$\tan 195 = \tan(90+15) = -\cot 15 = -\frac{1}{a}$

$\tan(150-15) - \tan 15 = -a$

$\tan 255 = \tan(270-15) = \cot 15$

$= \frac{1}{a}$

$\frac{2 \times \frac{1}{a} - \frac{1}{a}}{2 - a \cdot \frac{1}{a}} = \frac{\frac{1}{a}}{2a + \frac{1}{a}}$

$-a - \frac{1}{a}$

$= \boxed{\frac{-1}{2a^2+1}}$ ✓

$\frac{\frac{\sin\alpha}{\cos\alpha} + \frac{\cos\alpha}{\cos\alpha}}{\frac{\sin\alpha}{\cos\alpha} - \frac{\cos\alpha}{\cos\alpha}} + \frac{\frac{\sin\alpha}{\cos\alpha} - \frac{\cos\alpha}{\cos\alpha}}{\frac{\sin\alpha}{\cos\alpha} + \frac{\cos\alpha}{\cos\alpha}}$

$\frac{\tan\alpha+1}{\tan\alpha-1} + \frac{\tan\alpha-1}{\tan\alpha+1} =$

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$$\frac{\tan^2\theta + 1 + 2\tan\theta + \tan^2\theta + 1 - 2\tan\theta}{\tan^2\theta - 1}$$

$$\frac{2\tan^2\theta + 2}{\tan^2\theta - 1} = 2^2 \cdot 2$$

$$2\tan^2\theta + 2 = 4\tan^2\theta - 4$$

$$\boxed{\tan^2\theta = 3}$$

-9

$$\sin^2\theta = 1 - \cos^2\theta$$

$$1 - \cos^2\theta - 2\cos^2\theta + 1 = 2 - 3\cos^2\theta$$

$$= 1 - \cos^2\theta + 2\cos^2\theta - 1 = \cos^2\theta$$

$$\frac{2 - 3\cos^2\theta}{\cos^2\theta} = 4$$

$$2 - 3\cos^2\theta = 4\cos^2\theta$$

$$2 = 7\cos^2\theta$$

$$\cos^2\theta = \frac{2}{7}$$

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$\tan^2 x = \frac{\sin^2 x}{\cos^2 x} = 1 - \frac{۲}{۷} = \frac{۵}{۷}$ ۹ ب(

$\frac{\frac{۵}{۷}}{\frac{۲}{۷}} = \boxed{\frac{۵}{۲}}$

۱۰ ب

$\frac{4\cos ۲\alpha}{۲} = \cos^2\alpha$

$\frac{1+\cos ۴۵}{۲} = \cos^2\alpha$ $(\frac{\sqrt{۲}}{۲})$

⊝ → رد

$\cos ۲۲/۵ = \pm\sqrt{\frac{۲+\sqrt{۲}}{۲}}$ ← $\sqrt{\frac{۲+\sqrt{۲}}{۴}} = \cos^2\alpha$

ب

$\sin(۶۷/۵)$

$\cos ۱۳۵ \to -\frac{\sqrt{۲}}{۲}$

$\frac{1-\cos ۲\alpha}{۲} = \sin^2\alpha$

$\sin^2\alpha = \sqrt{\frac{۲+\sqrt{۲}}{۴}}$

$\sin ۶۷/۵ = \pm\sqrt{\frac{۲+\sqrt{۲}}{۴}}$

⊝ رد

PARAMOUNT