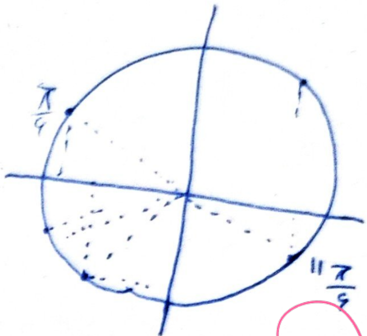
تمرین ... :

۱۸٫۲۵

(۱)

$$\frac{a\sin\frac{4\pi}{3} + b\cos\frac{7\pi}{6}}{a\sin\frac{11\pi}{6} + b\cos\frac{\pi}{3}} = \tan\frac{5\pi}{6}$$

$\sin\frac{4\pi}{3} = -\frac{\sqrt{3}}{2}$, $\cos\frac{7\pi}{6} = -\frac{\sqrt{3}}{2}$, $a\frac{1}{2}$, $\frac{1}{2}$



$$\frac{(a+b)}{\frac{1}{2}(b-a)} = \frac{-\sqrt{3}}{3} \times \frac{1}{2} \times \frac{2}{-\sqrt{3}} \qquad \frac{a+b}{-a+b} = \frac{1}{3}$$

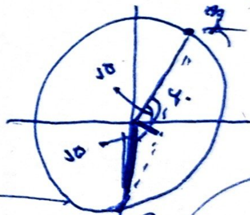
$3a + 3b = -a + b \longrightarrow 4a = -2b$

$(-2) = \frac{4}{-2} = \frac{b}{a}$ ✓

(۲)

(۲)

$\cos = \frac{1}{2} \longrightarrow \alpha = 60$ درجه



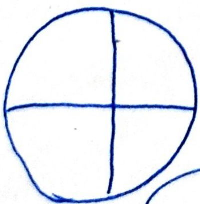
$\cos 150 = -\frac{\sqrt{3}}{2}$

۱٫۷۵

کوتاهترین مسیر = $AB = \sqrt{1^2 + 1^2 - 2\times1\times1\times -\frac{\sqrt{3}}{2}} = \sqrt{2 + \sqrt{3}}$

مسیر = $OP + OP' + PP' = 1 + 1 + \sqrt{2+\sqrt{3}}$

(۳)



۲:۴۰

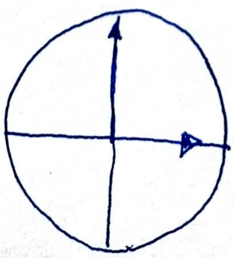
$\frac{\pi}{9} \times \frac{180}{\pi} = 20$ درجه

$\frac{360}{12} = 30$ ✓

h	۳۰ درجه
۴۰ min	۲۰ درجه

(۲)

(۴)



1 min → عقربه ساعت‌شمار → ۰٫۵ درجه

1 min → عقربه دقیقه‌شمار → ۶ درجه

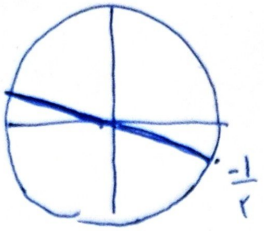
اختلاف کنونی = ۹۰ درجه

(۴)

$90 + 20 = 110$ درجه

معادله: $5.5t = 110 \Rightarrow 20$ min ✓

(٥)



$-\frac{1}{2} < \frac{m-3}{5} \leq 1$

(٢)

$-5 < 2m-6 \leq 10$

$1 < 2m \leq 16$

$0.5 < m \leq 8$

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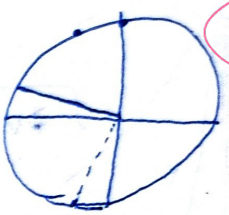
(٦)

$\tan\alpha = 0.75$ → $\sin = \frac{3}{5}$, $\cos = 4$



(١٠)

$$\frac{1 + -\frac{k}{5}}{-1 + -\frac{1}{2}} = -3 \rightarrow 1 - \frac{k}{5} = -\frac{9}{5}$$

$-3 - \frac{9}{2}$

$-3 - \frac{9}{2} = 1 - \frac{k}{5} \rightarrow -\frac{k}{5} = -\frac{22}{5}$ ↳ $k < 22$

$\frac{-k}{5} = \frac{-12}{5} \rightarrow k = 12$

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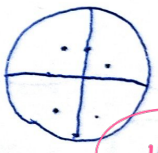
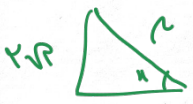
(٧)

$$\frac{+\cot(\alpha) + \cot(\alpha)}{\tan\alpha + -2\tan(\alpha)} = \frac{2\cot(\alpha)}{-\tan(\alpha)} = -2\cot^2\alpha$$



(١)



$\rightarrow \cot\alpha = -\frac{1}{2\sqrt{2}} \rightarrow -2 \times \cot^2\alpha = -2 \times +\frac{1}{8} = -\frac{1}{4}$

---

(١)

$3 \times 1.8 \times \frac{\pi}{10} = \frac{9\pi}{5}$

$2\pi r$	αr
πr^2	$\frac{\alpha}{2} r^2$

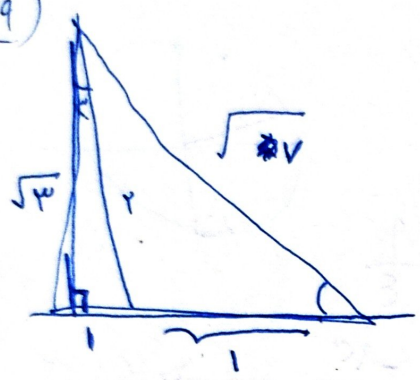
(٣)

$$\frac{S_A}{S_B} = \left(\frac{3}{2}\right)^2 = \frac{9}{4}$$

$$\frac{\frac{9\pi}{10} r_A}{\frac{9\pi}{20} r_B}$$

$$\frac{r_A}{r_B} = \frac{9}{6} = \frac{3}{2}$$

٩)



$\frac{1}{2}\sqrt{2} \times (2) = \sqrt{3}$ ٢

$2-1=1$

$\sin 2C = 2\sin C \cos C$

$2 \times \frac{\sqrt{2}}{\sqrt{7}} \times \frac{1}{\sqrt{7}} = \frac{4\sqrt{2}}{\sqrt{49}} = \frac{4\sqrt{2}}{7}$

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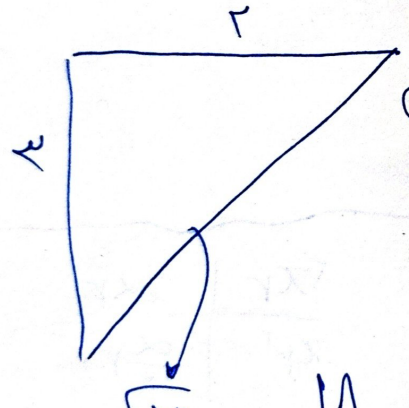
١٠)



$\frac{y}{6} = 9$

$y + 2 + \frac{1}{2} = \frac{13}{2}$

$\frac{11}{2} - \frac{13}{2} = \frac{5}{2}$ $\longrightarrow \frac{1}{2}\sin\alpha \sqrt{13} \times \sqrt{13} = \frac{5}{4}$

$\sin = \frac{5}{13}$