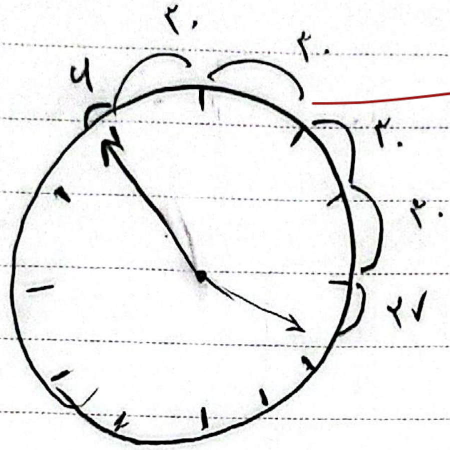
Subject. ۱۹۴ دهم دختران C

Day. Month. Year.

۱۹/۵

۱) ۲



الف)

$4\times30+27+6=153$

۱۲   ۱۴۷

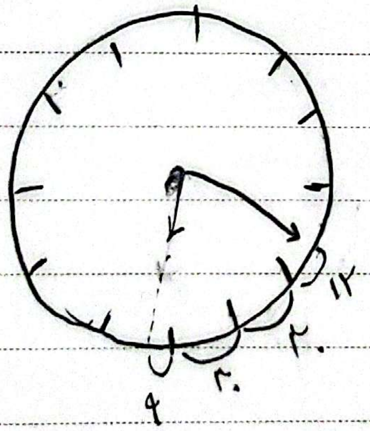
ب)

$|5.5M-30H|=D$

$|5.5\times54-30\times3|=207$

$360-207=153$

۲) ۲



الف)

$2\times30+9+12=81$ (۶۰، ۲۱)

ب)

$|5.5M-30H|=D$

$|5.5\times18-30\times6|=81$

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(٣) ١٫٥

الف) $S = \frac{\alpha R^2}{2} = \frac{\pi}{12} \times 9 = \frac{3\pi}{4}$

$P = 2r + \alpha r \Rightarrow 2(3) + \frac{\pi}{4}(3) = 9 + \frac{3\pi}{2}$

ب)

$P = \alpha R = \frac{\pi}{4} \times 4 = \frac{\pi}{2}$

(٤)

الف)

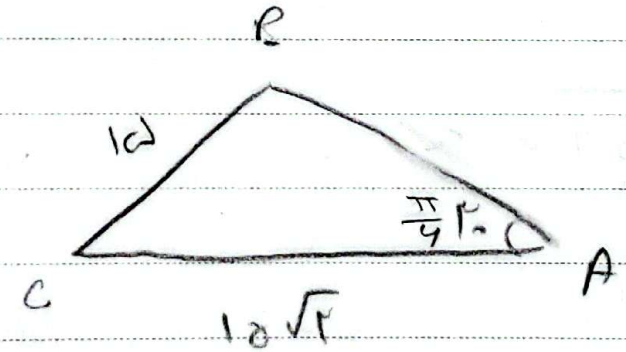
$\frac{1}{2} \times 5 \times 8 \times \frac{\sqrt{3}}{2} = 10\sqrt{3}$

ب)

$CB = \sqrt{25 + 49 - 110 \times \frac{1}{2}} = \sqrt{49} = 7$

$7 + 5 + 8 = 20$

(٥)



$\frac{1}{2} = \frac{\sin B}{15\sqrt{2}} \Rightarrow \sin B = \frac{15\sqrt{2} \times \frac{1}{2}}{15} = \frac{\sqrt{2}}{2}$

$B = \frac{\pi}{4}$ $\quad C = 180 - 45 = 105 = 1,75 \times \frac{\pi}{180} = \frac{7\pi}{12}$

Shafiei Publication

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$$\frac{-\tan\alpha + 2\tan\alpha}{\tan(\pi-\alpha) + 2\tan(\pi+\alpha)}$$

$$\frac{\tan(2\pi-\alpha) - \tan(2\pi+\alpha)}{-\tan\alpha - \tan\alpha}$$

(۲)

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

(۷)

$$\frac{\pi}{12} \times \frac{180}{\pi} = 15^\circ$$

$$A = \frac{2\tan\left(\frac{\pi}{2} - \frac{\pi}{12}\right) + \tan\left(\frac{\pi}{2} + \frac{\pi}{12}\right)}{2\tan\left(\pi - \frac{\pi}{12}\right) + \tan\left(\frac{3\pi}{2} - \frac{\pi}{12}\right)}$$

$$= \frac{2\cot\frac{\pi}{12} - \cot\frac{\pi}{12}}{-2\tan\frac{\pi}{12} - \cot\frac{\pi}{12}}$$

$$\frac{\frac{1}{\alpha}}{-2\alpha - \frac{1}{\alpha}} = \frac{\frac{1}{\alpha}}{\frac{-2\alpha^2-1}{\alpha}} = \frac{1}{-2\alpha^2-1}$$

(۱)

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

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

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$$3\tan^2\theta - 2 = 2\tan^2\theta + 2$$

$$\tan^2\theta = 5$$

(9)

$$\frac{\sin^2\theta - 2(1-\sin^2\theta) + 1}{\sin^2\theta + 2(1-\sin^2\theta) - 1} = 4$$

$$\frac{\sin^2\theta - 2 + 2\sin^2\theta + 1}{\sin^2\theta + 2 - 2\sin^2\theta - 1} = \frac{3\sin^2\theta - 1}{-\sin^2\theta + 1} = 4$$

$$3\sin^2\theta - 1 = -4\sin^2\theta + 4$$

$$7\sin^2\theta = 5$$

$$\sin^2\theta = \frac{5}{7} \Rightarrow \cos^2\theta = \frac{2}{7} \Rightarrow 1+\tan^2\theta = \frac{7}{2}$$

$$\tan^2\theta = \frac{5}{2}$$

(10)

$$\cos^2 22.5 = \frac{1+\cos 45}{2} = \frac{1+\frac{\sqrt{2}}{2}}{2} = \frac{2+\sqrt{2}}{4}$$

$$\cos 22.5 = \frac{\sqrt{2+\sqrt{2}}}{2}$$

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ب) $\sin(\frac{\pi}{12}) = \frac{1-\cos\frac{\pi}{6}}{2} = \frac{1+\frac{\sqrt{3}}{2}}{2} = \frac{1+\sqrt{3}}{4}$

$\sin\frac{\pi}{12} = \frac{\sqrt{2+\sqrt{3}}}{2}$