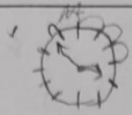


نام و نام خانوادگی ..... آرشه انزلی ..... پاسخنامه تشریحی تکلیف شماره ۱۹ کلاس ۱۰ دبیرستان ..... B

۱۹، ۲۵



$$3 \times 30 = 90$$

$$34 \div 2 = 17$$

$$\rightarrow 90 + 17 = 107 - 30 = 77$$

$$\Rightarrow 34 - 2 \times 17 = 0$$

(الف)

(ب)

$$| \omega, \omega_m - 30h | \rightarrow | \omega, \omega_v \omega_f - 90 | = | 24V - 90 | = 20V$$

$$\rightarrow 34 - 2 \times 17 = 0$$



$$18 \times 9 = 162$$

$$18 \div 2 = 9$$

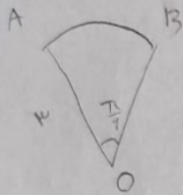
$$9 \times 30 = 270$$

$$\Rightarrow 162 - 162 = 0$$

(الف)

۲

$$| \omega, \omega (18) - 30(9) | = | 162 - 270 | = 108$$



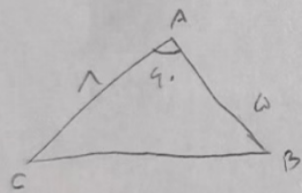
$$\frac{\pi}{r} R^2 \Rightarrow \frac{\pi}{r} \times \frac{r^2}{4} = \frac{\pi r}{4}$$

(الف)

۳

$$\frac{\pi}{4} (r) + \frac{\pi}{4} (r) = \frac{\pi}{2} (r)$$

(ب)



$$S = \frac{1}{2} \times a \times b \times \sin C = \frac{1}{2} \times \sqrt{3} \times \sqrt{3} \times \frac{\sqrt{3}}{2} = \frac{3\sqrt{3}}{4}$$

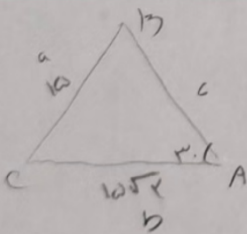
(الف)

۴

$$CB = \sqrt{a^2 + b^2 - 2ab \cos C} = \sqrt{3^2 + 3^2 - 2 \times 3 \times 3 \times \frac{1}{2}} = \sqrt{3}$$

$$P_A = a + b + c = 3 + 3 + \sqrt{3} = 6 + \sqrt{3}$$

(ب)



$$\hat{B} + \hat{C} = 180^\circ \Rightarrow A = 180^\circ - 100^\circ = 80^\circ$$

$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C} \Rightarrow \frac{10}{\sin 80^\circ} = \frac{10\sqrt{2}}{\sin B} \Rightarrow \sin B = \frac{10\sqrt{2} \sin 80^\circ}{10} = \sqrt{2} \sin 80^\circ$$

$$\Rightarrow \sin B = \sin 80^\circ$$

$$C = 180^\circ - B \Rightarrow 180^\circ - 100^\circ = 80^\circ \Rightarrow \sin C = \sin 80^\circ$$

$$\hat{B} = 80^\circ \Rightarrow \frac{\pi}{180} \times 80 = \frac{4\pi}{9}$$

$$\hat{C} = 100^\circ = \frac{5\pi}{9}$$

۵

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

6

$$\tan \frac{\pi}{11} = a \rightarrow a = \tan 18^\circ$$

$$\frac{r \tan 18^\circ + \tan 18^\circ}{r \tan 18^\circ - \tan 18^\circ} = \frac{r \tan(\frac{\pi}{11} + 18^\circ) + \tan(\frac{\pi}{11} + 18^\circ)}{r \tan(\frac{\pi}{11} - 18^\circ) - \tan(\frac{\pi}{11} - 18^\circ)} = \frac{r \cot 18^\circ - \cot 18^\circ}{-r \tan 18^\circ - \tan 18^\circ} = \frac{r \cot 18^\circ - \cot 18^\circ}{-r \tan 18^\circ - \tan 18^\circ}$$

$$= -\frac{1}{r} \cot 18^\circ$$

7

$$\frac{\sin x + \cos x}{\sin x - \cos x} + \frac{\sin x - \cos x}{\sin x + \cos x} = 1 \rightarrow \frac{(\sin x + \cos x)^2 + (\sin x - \cos x)^2}{(\sin x - \cos x)(\sin x + \cos x)}$$

$$= \frac{1 + \sin 2x + 1 - \sin 2x}{\sin^2 x - \cos^2 x} = \frac{2}{\sin^2 x - \cos^2 x} = 1 \rightarrow \frac{2}{\sin^2 x - \cos^2 x} = 1 \rightarrow \sin^2 x - \cos^2 x = 2$$

$$\tan^2 x = \frac{1 - \cos^2 x}{1 + \cos^2 x} = \frac{1 + \frac{2}{1 - \cos^2 x}}{1 - \frac{2}{1 - \cos^2 x}} = \frac{1 - \cos^2 x + 2}{1 - \cos^2 x - 2} = \frac{3 - \cos^2 x}{-1 - \cos^2 x}$$

8

$$\frac{\sin^2 x - r \cos^2 x + 1}{\sin^2 x + r \cos^2 x - 1} = r \rightarrow \frac{\sin^2 x - r(1 - \sin^2 x) + 1}{\sin^2 x + r(1 - \sin^2 x) - 1} = \frac{r \sin^2 x - 1}{1 - \sin^2 x} = r \rightarrow r \sin^2 x - 1 = r - r \sin^2 x \rightarrow 2r \sin^2 x = 2 \rightarrow \sin^2 x = \frac{1}{r}$$

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

9

$$\cos(44^\circ) = \cos(2 \cdot 22^\circ) \Rightarrow \cos^2 22^\circ = \frac{1 + \cos 44^\circ}{2} = \frac{1 + \frac{\sqrt{3}}{2}}{2} = \frac{2 + \sqrt{3}}{4}$$

$$\cos 22^\circ = \frac{\sqrt{2 + \sqrt{3}}}{2}$$

$$\sin(44^\circ) = \sin(2 \cdot 22^\circ) = 2 \sin 22^\circ \cos 22^\circ = \frac{1 - \cos 44^\circ}{2} = \frac{1 - \frac{\sqrt{3}}{2}}{2} = \frac{2 - \sqrt{3}}{4}$$

$$\sin 22^\circ = \frac{\sqrt{2 - \sqrt{3}}}{2}$$

10

$$\frac{\pi}{\kappa} = \left(\frac{\pi}{4}\right) \times \frac{1}{\gamma} = \frac{\kappa^0}{\gamma} = 12^\circ$$

✓

$$A = \frac{\gamma \tan\left(\frac{\pi}{\gamma} - 12^\circ\right) + \tan\left(\frac{\pi}{\gamma} + 12^\circ\right)}{\gamma \tan(\pi - 12^\circ) - \tan\left(\frac{\pi}{\gamma} - 12^\circ\right)} = \frac{\gamma \cot 12^\circ - \cot 12^\circ}{-\gamma \tan 12^\circ - \cot 12^\circ}$$

$$A = \frac{\cot 12^\circ}{-\gamma \tan 12^\circ - \cot 12^\circ} \xrightarrow{\tan 12^\circ = a} \frac{\frac{1}{a}}{-\gamma a - \frac{1}{a}} = \frac{-1}{\gamma a^2 + 1}$$

