

$$\tan(\pi - \alpha) = -\tan \alpha, \quad \tan(\pi + \alpha) = \tan \alpha, \quad \tan(r\pi - \alpha) = -\tan \alpha$$

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

$$\frac{-\tan \alpha + r(\tan \alpha)}{-\tan \alpha - \tan \alpha} = \frac{r \tan \alpha}{-r \tan \alpha} = \boxed{-1} \checkmark$$

$$\tan \frac{\pi}{4} = 1 \Rightarrow \tan 1.0 = \tan(90 + 10) = -\frac{1}{a}$$

$$\tan 190 = \tan(180 + 10) = \tan 10 \Rightarrow \tan 190 = \tan(180 + 10) = \tan 10$$

$$\frac{r \times \frac{1}{a} + (-\frac{1}{a})}{-r \times \frac{1}{a} - (-\frac{1}{a})} = \frac{\frac{r-1}{a}}{\frac{-r+1}{a}} = \frac{r-1}{-r+1} = \frac{r-1}{-(r-1)} = -1$$

$$\tan 190 = \tan(180 + 10) = \tan 10$$

$$A = \sin x + r \cos x, \quad B = \sin x - r \cos x \Rightarrow \frac{A}{B} + \frac{B}{A} = \frac{A^2 + B^2}{AB} = r$$

$$\Rightarrow A^2 + B^2 = rAB \Rightarrow AB = \frac{r}{2} \Rightarrow AB = (\sin x + r \cos x)(\sin x - r \cos x) =$$

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

$$A = \sin^2 x + r \cos^2 x, \quad 1 - A = \sin^2 x - r \cos^2 x \Rightarrow A - r(1 - A) = 1 - A$$

$$\Rightarrow A - r + rA + 1 = 1 - A$$

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

$$\Rightarrow A = \frac{r}{1+r} \Rightarrow \sin^2 x = \frac{r}{1+r} \Rightarrow \cos^2 x = \frac{1}{1+r} \Rightarrow \tan^2 x = \frac{r}{1}$$

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

$$\sin 4x = 2 \sin 2x \cos 2x = \frac{2}{r} \left(\frac{1-r}{1+r} \right) = \frac{2(1-r)}{r(1+r)}$$

نام و نام خانوادگی: ... باسختنامه تشریحی تکلیف شماره ۱۹ ... کلاس: ...

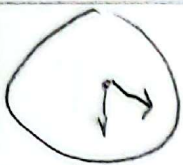


$$18, 78 \quad 120 = 120 + 7 + \frac{12}{2} = 153 \quad \checkmark \quad \text{الف}$$

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زاویه کوچک! $150 \times 120 - 120 \times 7 = 120 \checkmark \rightarrow 360 - 207 = 153$



$$120 \times 120 = 70 + 12 + \frac{12}{2} = 111 \checkmark \quad \text{الف}$$

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$$120 \times 120 - 120 \times 7 = -111 = 111 \checkmark \quad \text{ب}$$

$$5 = \frac{12}{2} \times 7 = \frac{12}{2} \times 9 = \frac{36}{2} \checkmark \quad \text{الف}$$

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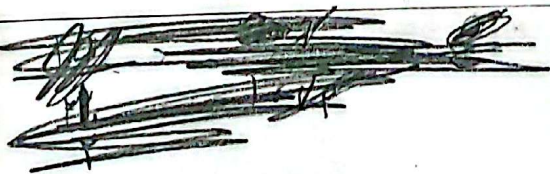
$$AB = 120 \times 7 = \frac{12}{2} \times 120 = \frac{12}{2} \Rightarrow P = \frac{12}{2} + 120 = 126 \checkmark \quad \text{ب}$$

$$\frac{1}{2} \times 120 \times 120 \times \frac{\sqrt{3}}{2} = 120 \checkmark \quad \text{الف}$$

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$$\sqrt{120 + 120 - 120 \times \frac{1}{2}} = 120 \checkmark \Rightarrow P = 120 + 120 + 120 = 360 \checkmark \quad \text{ب}$$



$$\frac{120}{\frac{1}{2}} = \frac{120 \sqrt{2}}{\sin B} \Rightarrow \sin B = \frac{\sqrt{2}}{2} \quad \checkmark \quad \text{الف}$$

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$$\Rightarrow \hat{B} = 45^\circ \Rightarrow C = 104 \checkmark \Rightarrow B = \frac{120}{2} \checkmark \Rightarrow C = \frac{120}{2} \checkmark$$

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$$120 \sin B = 120 \sqrt{2}$$

$$120 \sin B = \frac{120}{2}$$