

نام و نام خانوادگی: پاسخنامه تشریحی تکلیف شماره ۱۰۰ ... کلاس: ۷۵ ...

$$\hat{A} = 70 \Rightarrow \frac{70}{\frac{\sqrt{3}}{2}} = \frac{\frac{2\sqrt{3}}{3}}{\sin B} \Rightarrow \sin B = \frac{\sqrt{3}}{2} \Rightarrow B = 60^\circ$$

$$\Rightarrow C = 180 - 60 = 120^\circ$$

(۲)

$$\cancel{A_x} \quad A_y = 60 \Rightarrow \frac{\frac{2\sqrt{3}}{3}}{\frac{\sqrt{3}}{4}} = \frac{AC}{\frac{\sqrt{3}}{4}} \Rightarrow AC = 2\sqrt{3}$$

$$\Rightarrow \frac{2\sqrt{3}}{1} = \frac{x}{\frac{\sqrt{3}}{2}} \Rightarrow x = 2$$

(۲)

$$\frac{b^2 - 2}{\sin B} = \frac{c}{\sin C} = \frac{b}{\sin A} \Rightarrow \frac{b^2 - 2}{\sin B} = \frac{b}{\sin B} \Rightarrow b^2 - 2 = b$$

$$\Rightarrow b^2 - b - 2 = 0 \Rightarrow b = \begin{cases} +2 \checkmark \\ -1 \times \end{cases} \Rightarrow b = 2$$

(۲)

$$13^2 = 11^2 + 10^2 - 2(11)(10) \cos B$$

$$\Rightarrow 169 = \frac{121 + 100}{121} - 110 \cos B \Rightarrow 110 \cos B = 2\sqrt{2}$$

$$\Rightarrow \cos B = \frac{2\sqrt{2}}{110} = \frac{1}{55} \Rightarrow \sin B = \frac{54}{55}$$

(۲)

$$17 + 17 + 17\sqrt{3} - [(1 + 1\sqrt{3})] \frac{1}{2} = 32 + 17\sqrt{3} - 1 - 17\sqrt{3} = 24 = a^2$$

$$\Rightarrow a = \sqrt{24} = 2\sqrt{6}$$

(۲)

$$\frac{\frac{12\sqrt{3}}{2}}{\frac{\sqrt{3}}{2}} = \frac{4}{\sin B} = \frac{2 + 2\sqrt{3}}{\sin C} \Rightarrow \sin B = \frac{\sqrt{3}}{2} \Rightarrow B = 60^\circ$$

$$\Rightarrow \sin C = \frac{2 + 2\sqrt{3}}{4} = \frac{1 + \sqrt{3}}{2}$$

(۲)

$$1 + r - r \cos \alpha = r \Rightarrow \cos \alpha = \frac{1}{r} \quad \checkmark \quad (Y)$$

$$\Rightarrow 1 + r - r \cos \alpha = r \Rightarrow \cos \alpha = \frac{1}{r} \Rightarrow DE = \sqrt{r_0} \quad \checkmark$$

$$r + r - 1 = \frac{1}{r} \Rightarrow r = 1 \Rightarrow B = V \quad \checkmark \quad (w)$$

$$\frac{1}{r} \times \omega \times \frac{\sqrt{r}}{r} = 10 \sqrt{r} \quad \checkmark \quad (Y)$$

$$\frac{b^2 + c^2 + 2bc \cos \hat{A} - a^2}{2bc \cos \hat{A} + bc} = \frac{b^2 + c^2 + 2bc \cos \hat{A} - b^2 - c^2 + 2bc \cos \hat{A}}{2bc \cos \hat{A} + bc}$$

$$\Rightarrow \frac{2bc (\cos \hat{A} + 1)}{bc (\cos \hat{A} + 1)} = 1 \quad \checkmark \quad (Y)$$

$$\begin{aligned} a^2 + b^2 - c^2 &= a^2 + a^2 b - a^2 c \Rightarrow b^2 - c^2 = a^2 b - a^2 c \\ \Rightarrow (b - c)(b + c) &= a^2 (b - c) \Rightarrow b + c + cb = a^2 \\ \Rightarrow b^2 + c^2 + cb &= b^2 + c^2 - 2bc \cos \hat{A} \Rightarrow \cos \hat{A} = -\frac{1}{r} \\ \Rightarrow \hat{A} &= 110^\circ \quad \checkmark \quad (Y) \end{aligned}$$

$$\begin{aligned} (r - \cos \theta)(1 + r \cos \theta) + \frac{1}{r} &= r \Rightarrow r + 1 \cos \theta - r \cos^2 \theta = 1 \\ \Rightarrow r \cos^2 \theta - 1 \cos \theta + 1 &= 0 \Rightarrow \cos \theta = \frac{1 \pm \sqrt{1 - 4r}}{2r} \quad \checkmark \\ \Rightarrow AB &= r, AC = r \quad \checkmark \end{aligned}$$

$$\Rightarrow 1 + r - \frac{1}{r} = r_0 - 1 \sqrt{r} = a^2 \quad \checkmark \quad (Y)$$