

نام و نام خانوادگی: ریاضی پاسخنامه تشریحی تکلیف شماره ۱۳۰ ... کلاس: B

$$\frac{BC}{\sin \hat{A}} = \frac{AC}{\sin \hat{B}} \Rightarrow \frac{20}{\frac{\sqrt{2}}{2}} = \frac{2\sqrt{4}}{\sin \hat{B}} \Rightarrow \frac{20\sqrt{2}}{\sqrt{2}} = \frac{2\sqrt{4}}{\sin \hat{B}} \Rightarrow \sin \hat{B} = \frac{\sqrt{2}}{2} \Rightarrow \hat{B} = 45^\circ$$

C = 45^\circ

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$$\frac{2\sqrt{2}}{\frac{\sqrt{2}}{2}} = \frac{AC}{\frac{\sqrt{2}}{2}} \Rightarrow AC = 2\sqrt{2}$$

$$\frac{20}{\frac{\sqrt{2}}{2}} = \frac{2\sqrt{2}}{1} \Rightarrow 20 = 2\sqrt{2}$$

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$$\frac{C}{\sin \hat{C}} = \frac{b}{\sin \hat{B}} \Rightarrow \frac{\sin \hat{C}}{\sin \hat{B}} = \frac{C}{b} \Rightarrow (b-r) \times \frac{1}{b} = \frac{C}{b} \Rightarrow b - r = C = 1$$

$$b - r = b \Rightarrow b - b - r = 0 \Rightarrow \begin{cases} b = r \\ b = 1 \end{cases}$$

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$$13 = \sqrt{400 + 441 - 140 \cos \hat{B}} \Rightarrow 141 - 140 \cos \hat{B} = 149 \Rightarrow 140 \cos \hat{B} = 442$$

$$\cos \hat{B} = \frac{442}{140} = \frac{221}{70}$$

$$\sin \hat{B} = \frac{2}{5}$$

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$$a^2 = 14 + 14 + 1\sqrt{2} \cdot 1 - 1\sqrt{2} = 28 \Rightarrow a = 2\sqrt{2}$$

(الف)

$$\frac{a}{\sin \hat{A}} = \frac{b}{\sin \hat{B}} \Rightarrow \frac{2\sqrt{2}}{\frac{\sqrt{2}}{2}} = \frac{r}{\sin \hat{B}} \Rightarrow 4\sqrt{2} = \frac{r}{\sin \hat{B}} \Rightarrow \sin \hat{B} = \frac{r}{4\sqrt{2}} \Rightarrow \hat{B} = 45^\circ$$

(ب)

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$$C = 180 - (45 + 40) = 95^\circ$$

$$BC^2 = AB^2 + AC^2 - 2(AB)(AC) \cos A \Rightarrow 1^2 = 1 + 1 - 2 \cos A \Rightarrow \cos A = \frac{1}{2}$$

$$DE^2 = AD^2 + AE^2 - 2(AD)(AE) \cos A \Rightarrow x^2 = 14 + 14 - 11 = 2x^2 \Rightarrow x = \sqrt{10}$$

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$$a^2 = 16 + 16 - 10 = 2a = 10$$

(الف)

(ب)

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$$s = \frac{1}{2} bc \sin A = \frac{1}{2} \times 10 \times \frac{\sqrt{3}}{2} = 5\sqrt{3}$$

$$\frac{b^2 + c^2 + 2bc - a^2}{bc \cos A + bc} = \frac{b^2 + c^2 + 2bc - b^2 - c^2 + 2bc \cos A}{bc(\cos A + 1)} = \frac{2bc(\cos A + 1)}{bc(\cos A + 1)}$$

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$$= 2$$

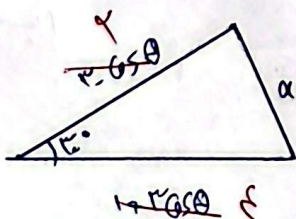
$$a^2 + b^2 - c^2 = a^2 + a^2 b - a^2 c = a(b - c)(b + c + bc) \Rightarrow a^2(b - c)$$

$$a^2 = b^2 + c^2 + bc \Rightarrow bc \sin A = bc \cos A \Rightarrow \cos A = \frac{1}{2}$$

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$$\frac{1}{2} ab \sin C = \frac{1}{2} ac \sin B \Rightarrow -1 \cos \theta + 1 \cos \theta + 1 = 1$$

$$-1 \cos \theta + 1 \cos \theta - 1 = 0 \Rightarrow \cos \theta = 1$$



$$a^2 = 1 + 14 - 1\sqrt{2} = 15 - \sqrt{2}$$

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