

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

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

C: 45°

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

$$\frac{x}{\sin 45^\circ} = \frac{2\sqrt{2}}{1} \Rightarrow x = 2$$

$$\frac{c}{\sin \hat{C}} = \frac{b}{\sin \hat{B}} \Rightarrow \frac{\sin \hat{C}}{\sin \hat{B}} = \frac{c}{b} \Rightarrow (b^2 - 1) \times \frac{1}{b} = \frac{c}{b} \Rightarrow b - \frac{1}{b} = 1$$

$$b^2 - 1 = b \Rightarrow b^2 - b - 1 = 0 \Rightarrow b = 2$$

$$13 = \sqrt{100 + 121 - 140 \cos \hat{B}} \Rightarrow 141 - 140 \cos \hat{B} = 169 \Rightarrow 140 \cos \hat{B} = 44 \Rightarrow \cos \hat{B} = \frac{44}{140} = \frac{11}{35}$$

$$\sin \hat{B} = \frac{24}{35}$$

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

$$\frac{a}{\sin \hat{A}} = \frac{b}{\sin \hat{B}} \Rightarrow \frac{2\sqrt{2}}{\frac{\sqrt{2}}{2}} = \frac{2}{\sin \hat{B}} \Rightarrow \sin \hat{B} = \frac{1}{2} \Rightarrow \hat{B} = 30^\circ$$

C: 180 - (45 + 30) = 105°

$$BC^2 = AB^2 + AC^2 - 2(AB)(AC) \cos A \Rightarrow 5^2 = 1^2 + 2^2 - 2 \cos A \Rightarrow \cos A = \frac{1}{2}$$

$$DE^2 = AD^2 + AE^2 - 2(AD)(AE) \cos A \Rightarrow x^2 = 14 + 24 - 12 = 2x^2 \Rightarrow x = 4\sqrt{6}$$

$$a^2 = 16 + 49 - 40 = 25 \Rightarrow a = 5$$

$$5 = \frac{1}{2} bc \sin A = \frac{1}{2} \times 6 \times 7 \times \frac{\sqrt{3}}{2} \Rightarrow 6\sqrt{3}$$

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

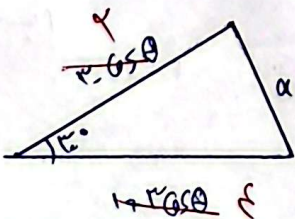
$$= 1$$

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

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

$$a^2 = b^2 + c^2 - 2bc \cos A \Rightarrow \hat{A} = 120^\circ$$

$$\frac{1}{2} ab \sin C = \frac{1}{2} (-3 \cos \theta + 1) \cos \theta + \frac{1}{2} \sin 1$$



$$-3 \cos^2 \theta + \cos \theta = 1 \Rightarrow 3 \cos^2 \theta - \cos \theta + 1 = 0$$

$$a^2 = 1^2 + 14 - 1\sqrt{2} = 16 - 1\sqrt{2}$$