نام و نام خانوادگی ......[illegible]...... پاسخنامه تشریحی تکلیف شماره ..۱۳.. کلاس ...دوازدهم ریاضی B...

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$A = 180 - (B+C) \Rightarrow A = 60^\circ$ $\sin 60^\circ = \frac{\sqrt{3}}{2}$

$\frac{BC}{\sin A} = \frac{AC}{\sin B} = \frac{AB}{\sin C}$

$\frac{30}{\frac{\sqrt{3}}{2}} = \frac{\frac{30\sqrt{6}}{3}}{\sin B} \Rightarrow \sin B = \frac{\frac{30\sqrt{6}}{3} \times \frac{\sqrt{3}}{2}}{30} = \frac{\sqrt{2}}{2} \Rightarrow B = 45$ ق ق

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$B = 45 \Rightarrow C = 120 - 45 = 75^\circ$

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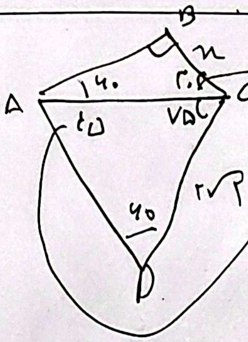

$90 - 60 = 30$

$360 - (140 + 30 + 20 + 75 + 60) = 45$

$\frac{\sin A_1}{2\sqrt{2}} = \frac{\sin D}{AC} \Rightarrow \frac{\frac{\sqrt{2}}{2}}{2\sqrt{2}} = \frac{\frac{\sqrt{3}}{2}}{2\sqrt{3}}$ AC

$\frac{\sin AB}{2\sqrt{3}} = \frac{\sin 60}{x} = \frac{\frac{\sqrt{3}}{2}}{2\sqrt{3}} \Rightarrow x = \frac{\sqrt{3}}{2} \times 2\sqrt{3} = 3 = x$

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

دو طرف معادله را بر $\sin C$ تقسیم می‌کنیم

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

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

$(b-2)(b+1)$

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$\Rightarrow b = 2$

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$AC^2 = AB^2 + BC^2 - 2AB \cdot BC \cos B$

$169 = 400 + 441 - 2 \times 420 \cos B \Rightarrow \cos B = 0.8$ $(\approx) B \approx 53$

$\sin B = \pm\sqrt{1 - \cos^2 B} = \pm \frac{6}{10}$ تبدیل

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$\sin B = \frac{6}{10}$

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$a^2 = b^2 + c^2 - 2bc\cos A \Rightarrow 16 + 12 + 8\sqrt{3} - 2 \times 4 \times \frac{1}{2} \times (2 + 2\sqrt{3}) = a^2$

$\Rightarrow a^2 = $ [illegible] $\Rightarrow a = 2\sqrt{6}$

$\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin B}{4} = \frac{\frac{\sqrt{3}}{2}}{2\sqrt{6}} \Rightarrow \sin B = \frac{\sqrt{2}}{2} \Rightarrow B = 45$

$180 - (60 + 45) = 75 \Rightarrow C = 75$

$$f = f + 1 - 2 \times 12 \times \cos A \Rightarrow \cos A = \frac{1}{2}$$

$$DE^2 = AE^2 + AB^2 - 2AE \times AB \cos A$$

$$49 + 14 - 21 = 42 \Rightarrow DE = \sqrt{42} \Rightarrow DE = 2\sqrt{10}$$

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$$BC^2 = AB^2 + AC^2 - 2AB \times AC \cos A = 49 + 25 - 2 \times 7 \times 5 \times \frac{1}{2} \Rightarrow BC = \sqrt{39}$$

$$S = AC \times AB \times \sin A \times \frac{1}{2} = 35 \times \frac{1}{2} \Rightarrow \frac{35}{2}$$

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

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$$a^2 + b^2 - c^2 = a^3 + ab - ac$$

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

$$\Rightarrow a = b + c \Rightarrow a^2 = b^2 + c^2 + 2bc \Rightarrow a^2 = b^2 + c^2 + 2bc\cos A \Rightarrow$$

$$\cos A = -\frac{1}{2} \Rightarrow A = 120^\circ$$

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$$\frac{1}{2} AB \times AC \times \sin A = \frac{1}{2}(\cos\theta + 1)(1 - \cos\theta) = \frac{1}{2}(1 - \cos\theta)(1 + \cos\theta) = \frac{1}{2}$$

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

$$BC^2 = AB^2 + AC^2 - 2 \times \sqrt{2} \times 1 = 3 + 2\cos\theta + 2\cos^2\theta - 2\sqrt{2}\cos\theta$$

$$\cos^2\theta + 1 - \sqrt{2}$$

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