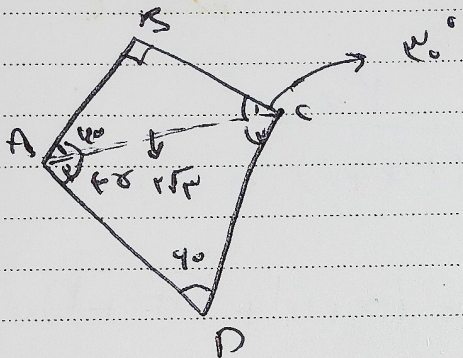


$$\hat{B} + \hat{C} = 140^\circ \Rightarrow \hat{A} + \hat{B} + \hat{C} = 180^\circ$$

$$\Rightarrow \hat{A} = 40^\circ$$

$$\frac{\sin 40^\circ}{r} = \frac{\sin B}{20\sqrt{2}} \Rightarrow \sin B = \frac{\sqrt{2}}{2} \rightarrow \hat{B} = 45^\circ$$

$$\hat{B} + \hat{C} = 140^\circ \Rightarrow \hat{C} = 95^\circ$$



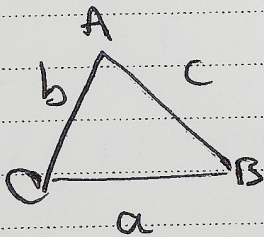
$$\hat{A}_1 + \hat{B} + \hat{C}_1 = 180^\circ$$

$$\Rightarrow \hat{C}_1 = 4^\circ$$

$$\hat{A}_r + \hat{C}_r + \hat{D} = 180^\circ \Rightarrow \hat{A}_r = 40^\circ$$

$$\frac{r\sqrt{2}}{\sin 40^\circ} = \frac{AC}{\sin 40^\circ} \Rightarrow \frac{r\sqrt{2}}{\sqrt{2}} = \frac{AC}{\sqrt{2}} \Rightarrow AC = r\sqrt{2}$$

$$AC \times \sin 40^\circ = r \Rightarrow r\sqrt{2} \times \frac{\sqrt{2}}{2} = r$$



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

$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

$$\frac{b \sin C}{\sin B} = c$$

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

$$a + c = b$$

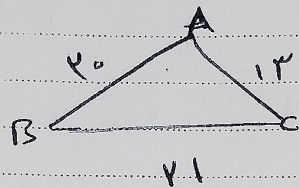
$$b = -1, b = 2$$

✓ لنگه سب است

۲۳ فروردین
پنجشنبه

۱۴۴۵ شوال ۲
11 Apr 2024

کتاب حساب



$$a^2 = b^2 + c^2 - 2bc \cos A \quad (14)$$

$$149 = 400 + 121 - 2 \cdot 20 \cdot 11 \cdot (\cos B)$$

$$\cos B = \frac{400 + 121 - 149}{2 \cdot 20 \cdot 11}$$

$$\sin^2 B + \cos^2 B = 1$$

$$\sin^2 B + \frac{14}{20} = 1 \Rightarrow \sin^2 B = \frac{6}{20}$$

$$\Rightarrow \sin B = \frac{\sqrt{6}}{2}$$

(الف) $a^2 = 14 + 2(1 + \sqrt{3} + 2\sqrt{3}) - (14(1 + \sqrt{3}) \frac{1}{\sqrt{3}})$ (15)

$$a^2 = 14 + 2 + 2\sqrt{3} + 4\sqrt{3} - 14(1 + \sqrt{3}) \frac{1}{\sqrt{3}} = 14 + 2\sqrt{3} - 14\sqrt{3} = 2\sqrt{3} \Rightarrow a = \sqrt{2\sqrt{3}}$$

ب) $\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C} \Rightarrow \frac{\sqrt{2\sqrt{3}}}{\sin A} = \frac{2}{\sin B} \Rightarrow \sin B = \frac{2}{\sqrt{2\sqrt{3}}}$

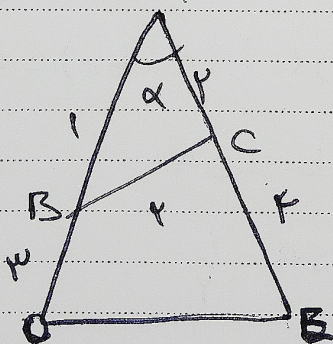
تعطیل به مناسبت عید سعید فطر

$$B = 45^\circ$$

۲۴ فروردین
جمعه

$$\hat{A} + \hat{B} + \hat{C} = 180^\circ \Rightarrow \hat{C} = 90^\circ$$

۱۴۴۵ شوال ۳
12 Apr 2024



$$a^2 = b^2 + c^2 - 2bc \cos A \quad (16)$$

$$1 = 1 + 1 - 2 \cdot 1 \cdot 1 \cdot \cos \alpha = 2 - 2 \cos \alpha \Rightarrow \cos \alpha = \frac{1}{2}$$

$$(DE)^2 = 1^2 + 1^2 - 2 \cdot 1 \cdot 1 \cdot (\cos \alpha)$$

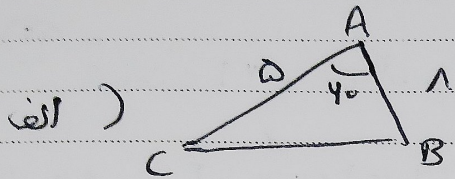
$$(DE)^2 = 1 \Rightarrow DE = 1$$

۱۴۰۳

(✓)

۱۴۴۵ سوال ۴

13 Apr 2024



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

$$(BC)^2 = 4^2 + 1^2 - 2 \cdot 4 \cdot 1 \cdot \cos(120^\circ) \Rightarrow (BC)^2 = 19$$

$$\Rightarrow BC = \sqrt{19}$$

(۲)

$$b) S_{\triangle ABC} = \frac{1}{2} bc \sin A \Rightarrow \frac{1}{2} \times 4 \times 1 \times \sin 120^\circ = 10\sqrt{3}$$

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

$$(b+c)^2 - a^2$$

$$bc (\cos A + 1)$$

$$\Rightarrow 2bc (\cos A + 1)$$

$$bc (\cos A + 1) = 1$$

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

(۱)

(۲)

$$\frac{a^3 + b^3 - c^3}{a + b - c}$$

$$= a^2 \Rightarrow a^3 + b^3 - c^3 = a^2(a + b - c)$$

$$a + b - c$$

$$\Rightarrow b^3 - c^3 = a^2b - a^2c \Rightarrow (b-c)(b^2 + bc + c^2) = a^2(b-c)$$

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

$$2 \cos A = 1 \Rightarrow \cos A = \frac{1}{2}$$

$$2 \cos A = -1 \rightarrow \cos A = -\frac{1}{2}$$

$$A = 120^\circ$$

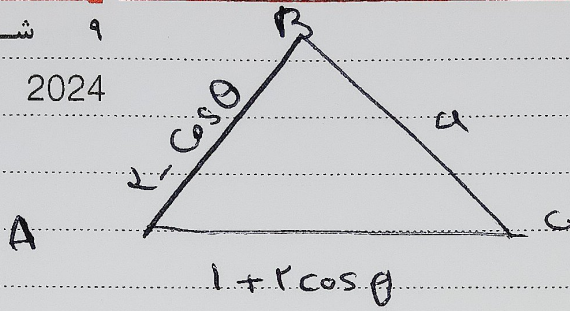
۳۰ فروردین
پنجشنبه

۱۴۴۵ شوال ۹

18 Apr 2024

۲۵۲۵۲۵۲۵۲۵

(۱۰)



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

$$-r \cos \theta + 1 \cos \theta - \Delta = 0 \xrightarrow{a+b+c=0}$$

$$r_1 = 1, r_2 = \frac{c}{a}$$

(r)

$$\cos \theta = 1$$

$$-1 \leq \cos \theta \leq 1$$

$$\cos \theta = \frac{\Delta}{r}$$

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

$$a^2 = 14 + 1 - 1\sqrt{13} \Rightarrow a^2 = 15 - \sqrt{13}$$

✓

۳۱ فروردین
جمعه

۱۴۴۵ شوال ۱۰

19 Apr 2024