

(1) (3)

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

$$a^2 = 14 + 25 - 2 \times 14 \times 5 \cos 40^\circ = 25$$

$$\Rightarrow a = 5$$

(2)

$$\frac{a \sin 40^\circ}{5} = \frac{2}{\sin B}$$

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

$$\Rightarrow B = 23.6^\circ$$

$$\Rightarrow C = 12.4^\circ$$

(4)

$$r^2 = r^2 + r^2 - 2r \times r \times \cos \alpha$$

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

$$\Rightarrow \alpha = 60^\circ$$

$$DE^2 = r^2 + 4^2 - 2 \times r \times 4 \times \frac{1}{2} = 20$$

$$\Rightarrow DE = \sqrt{20} = 2\sqrt{5}$$

(5) (11/18)

$$BC^2 = a^2 + b^2 - 2ab \cos 40^\circ = 29$$

$$\Rightarrow BC = \sqrt{29}$$

(6)

$$S_{ABC} = \frac{1}{2} \times a \times b \times \sin 40^\circ = 10$$

$$a \times b \times \frac{1}{2} \times \frac{\sqrt{5}}{5} = 10 \Rightarrow ab = 20$$

(7)

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

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

(1)

$$A = 120^\circ - 10^\circ = 110^\circ$$

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

$$\frac{10}{\sin 110^\circ} = \frac{AC}{\sin 30^\circ}$$

$$\Rightarrow AC = 10 \sin 30^\circ = 5$$

$$C = 120^\circ - 110^\circ = 10^\circ$$

(2)

$$\frac{AC}{\sin 40^\circ} = \frac{r \sqrt{5}}{\sin 60^\circ}$$

$$\Rightarrow AC = \frac{r \sqrt{5} \sin 40^\circ}{\sin 60^\circ}$$

$$m = \sin 40^\circ \times AC$$

$$= \frac{\sin 40^\circ}{\sin 60^\circ} \times r \sqrt{5} = 10$$

(3)

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

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

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

$$\Rightarrow b = \frac{1 \pm \sqrt{1 + 4r^2}}{2}$$

(4)

$$14^2 = r^2 + r^2 - 2r \times r \times \cos B$$

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

$$\Rightarrow \sin B = \frac{\sqrt{3}}{2}$$

$$\Rightarrow \sin B = \frac{\sqrt{3}}{2}$$

نہی $\frac{1}{r}$

(10)

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

$$\Rightarrow r + \epsilon \cos \theta - \cos \theta - \epsilon \cos^2 \theta = r$$

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

$$\Rightarrow \cos \theta = \frac{1}{\epsilon}$$

$$a^2 = r^2 + \epsilon^2 - 2 \times r \times \epsilon \times \cos \theta$$

$$= r_0 - \epsilon \sqrt{r}$$

$$a^2 + b^2 - c^2 = a^2 + a^2 b - a^2 c$$

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

$$b^2 + c^2 + bc = a^2 \rightarrow b^2 + c^2 - bc = b^2 + c^2 - rbc \text{ CSA}$$

$$\text{CSA} = \frac{1}{r} \rightarrow \underline{\underline{A = 12}}$$

9 سوال