

$$A = 12\text{cm}$$

$$B = 12\text{cm}$$

$$C = 18\text{cm}$$

$$S = a + b + c \cdot \frac{1}{2}$$

$$S = 12 + 12 + 18 \cdot \frac{1}{2}$$

$$S = 42 \cdot \frac{1}{2} = 21\text{cm}$$

$$\sqrt{21(21-12)(21-12)(21-18)}$$

$$\sqrt{21(9)(9)(3)}$$

$$9\sqrt{7 \cdot 3 \cdot 3}$$

$$9 \cdot 3\sqrt{7} \text{ cm sq.}$$

$$27 \cdot 2.65 \text{ cm sq.}$$

$$= 71.55 \text{ cm sq.}$$

(take the nos. in simpler form and take two similar no. out of root)

Now find the height

Let height be h

Area of triangle = $\frac{1}{2} \cdot b \cdot h$

$$71.55 = \frac{1}{2} \cdot 18 \cdot h$$

(base = $\frac{3}{2}x = 18\text{cm}$)

$$71.55 = 9 \cdot h$$

$$H = 71.55/9$$

$$H = 7.95\text{cm}$$

Ans3. Area of triangle

Using Heron's Formula

$$\sqrt{s(s-a)(s-b)(s-c)}$$

$$A = 35\text{cm}$$

$$B = 54\text{cm}$$

$$C = 61\text{cm}$$

$$S = a + b + c \cdot \frac{1}{2}$$

$$S = 35 + 54 + 61 \cdot \frac{1}{2}$$

$$S = 89 + 61 \cdot \frac{1}{2} = 110 \cdot \frac{1}{2}$$

$$S = 55 \cdot \frac{1}{2} = 75\text{cm}$$

$$= \sqrt{75(75-35)(75-54)(75-61)}$$

$$= \sqrt{75 \cdot 40 \cdot 21 \cdot 14}$$

$$= \sqrt{3 \cdot 5 \cdot 5 \cdot 4 \cdot 2 \cdot 5 \cdot 3 \cdot 7 \cdot 7 \cdot 2}$$

(take two similar nos. out of root)

$$= 3 \cdot 5 \cdot 2 \cdot 2 \cdot 7 \sqrt{5}$$

$$= 12 \cdot 35 \sqrt{5} \text{ cm sq.}$$

Now, let's find the height

Area of triangle = $\frac{1}{2} \cdot b \cdot h$

$$12 \cdot 35 \sqrt{5} = \frac{1}{2} \cdot 35 \cdot h$$

(Note: in this to find smallest altitude take the smallest side)

$$12 \cdot 35 / 35 \sqrt{5} = \frac{1}{2} \cdot h$$

$$12 \cdot 2 \sqrt{5} = h$$

(35/35=1)

$$24 \sqrt{5} = h$$

$$24 \cdot 2.24 \text{ cm} = h$$

$$H = 53.76\text{cm}$$