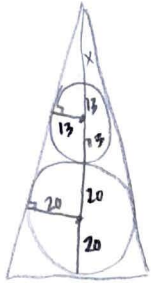


1



$$\frac{x+13}{13} = \frac{x+40}{20}$$

$$20x + 260 = 13x + 596$$

$$7x = 336$$

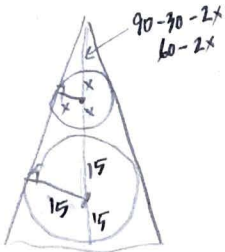
$$x = 48.29 \text{ cm}$$

∴ height is

$$48.29 + 26 + 40$$

$$= 114.29 \text{ cm}$$

3



$$\frac{60-2x+x}{x} = \frac{60-2x+2x+15}{15}$$

$$\frac{60-x}{x} = \frac{75}{15} = \frac{5}{1}$$

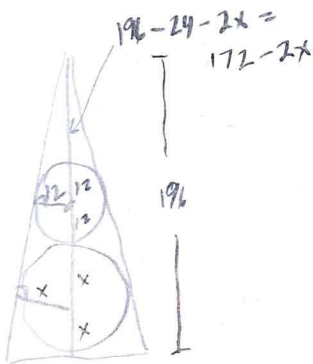
$$60-x = 5x$$

$$60 = 6x$$

$$\frac{60}{6} = x$$

Diameter of smaller  $\odot = 20 \text{ cm}$

5



$$\frac{172-2x+12}{12} = \frac{172-2x+24+x}{x}$$

$$\frac{184-2x}{12} = \frac{196-x}{x}$$

$$\frac{92-x}{6} = \frac{196-x}{x}$$

$$92x - x^2 = 1176 - 6x$$

$$0 = x^2 - 98x + 1176$$

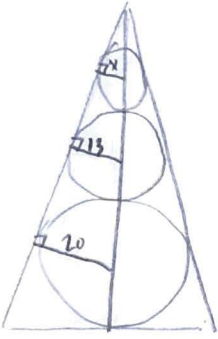
$$0 = (x-14)(x-84)$$

$$x=14, x=84$$

So diameter of larger  $\odot$  can be either

28 cm or 168 cm

7



$\Delta$ 's are all  $\sim$

ratio of sides is  $\frac{13}{20}$

$$\text{so } \frac{13}{20} \cdot 13 = 8.45 \text{ cm}$$

9

$$20 \cdot \frac{13}{20} \cdot \frac{13}{20} = 20 \cdot \left(\frac{13}{20}\right)^2 = 8.45 \leftarrow 3^{\text{rd}}$$

$$\text{so } 20 \cdot \left(\frac{13}{20}\right)^6 = 1.51 \leftarrow 7^{\text{th}}!$$