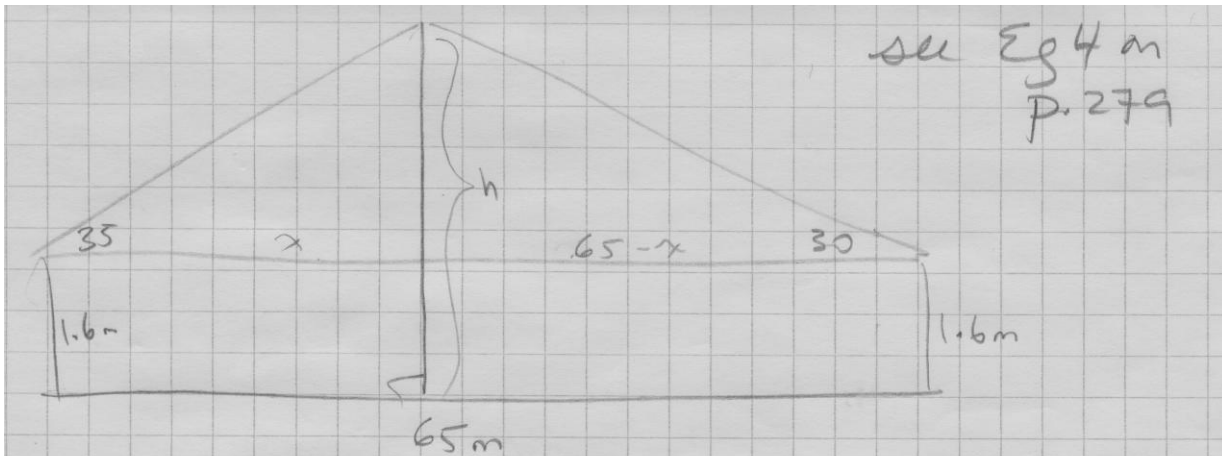**p.282 #10** Kyle and Anand are standing on level ground on opposite sides of a tree.
Kyle measures the angle of elevation to the treetop as 35°. Anand measures an angle of elevation of 30°.
Kyle and Anand are 65 m apart. Kyle's eyes and Anand's eyes are 1.6 m above ground.
How tall, to the nearest tenth of a metre, is the tree? **[Refer to p.278 Ex.4]**

see Eg 4 m
p. 279

$$\tan 35 = \frac{h - 1.6}{x} \qquad\qquad \tan 30 = \frac{h - 1.6}{65 - x}$$

$$x \tan 35 + 1.6 = h \qquad\qquad \tan 30 (65 - x) + 1.6 = h$$

$$x \tan 35 + 1.6 = \tan 30 (65 - x) + 1.6$$

$$x \tan 35 + 1.6 = 65 \tan 30 - x \tan 30 + 1.6$$

$$x \tan 35 + x \tan 30 = 65 \tan 30$$

$$x (\tan 35 + \tan 30) = 65 \tan 30$$

$$x = \frac{65 \tan 30}{(\tan 35 + \tan 30)}$$

$$x = 29.4 \text{ m}$$

sub $x = 29.4$ into $h = x \tan 35 + 1.6$

$$h = 29.4 \tan 35 + 1.6$$
$$h = 22.2$$

∴ height is 22.2 m.