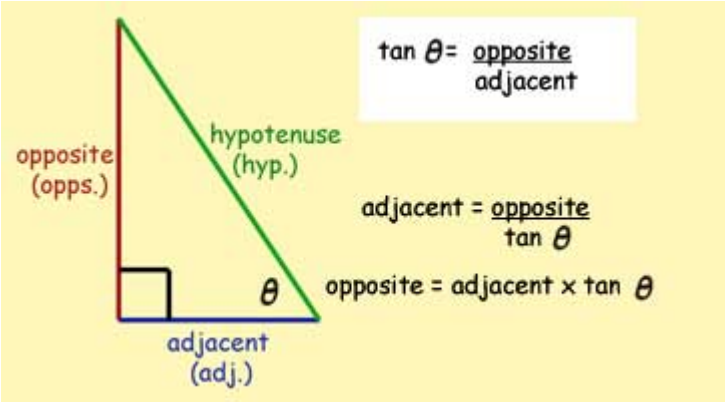
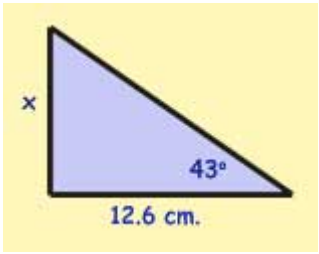
The Tangent Ratio



Method for problems:

- write out the ratio putting in the values for the given sides and/or angle.
- put a '1' under the sine/cos/tan
- cross multiply(top left by bottom right = top right by bottom left)
- make the 'unknown' the subject of the equation

Example #1



$$\frac{\tan 3^\circ}{1} = \frac{x}{12.6}$$

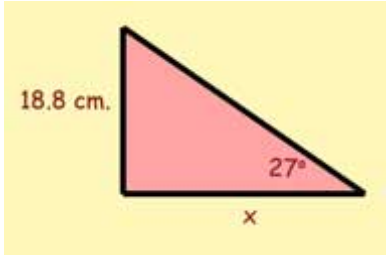
$$x = 12.6 \tan 43^\circ$$

$$= 12.6 \times 0.9325$$

$$= 11.7495$$

$$= \underline{11.75 \text{ cm}} \text{ (2 d.p.)}$$

Example #2



$$\frac{\tan 27^\circ}{1} = \frac{18.8}{x}$$

$$x \tan 27^\circ = 18.8$$

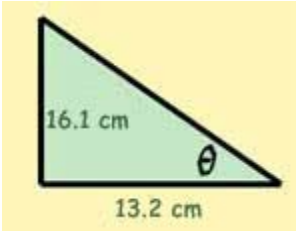
$$x = \frac{18.8}{\tan 27^\circ}$$

$$= \frac{18.8}{0.5095}$$

$$= 36.8989$$

$$x = \underline{36.90 \text{ cm}} \quad (2 \text{ d.p.})$$

Example #3



$$\frac{\tan \theta}{1} = \frac{16.1}{13.2}$$

$$= 1.2197$$

$$\theta = 50.6525$$

$$= \underline{50.65^\circ} \quad (2 \text{ d.p.})$$