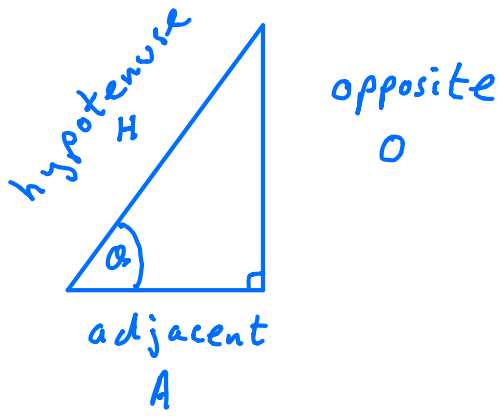
Trigonometry



3 trigonometric ratios

$$\sin\theta = \frac{O}{H}$$

$$\cos\theta = \frac{A}{H}$$

$$\tan\theta = \frac{O}{A}$$

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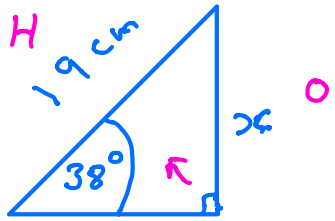
We can use trigonometry to solve triangles i.e. find unknown sides and unknown angles

Example 1



Find x

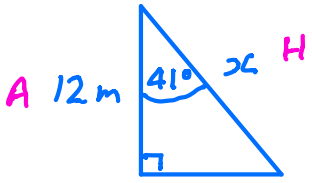
$$\sin = \frac{O}{H}$$

$$\sin 38^\circ = \frac{x}{19}$$

$$19\sin 38^\circ = x$$

$$x = 11.7 \text{ cm}$$

Example 2



Find x

$$\cos = \frac{A}{H}$$

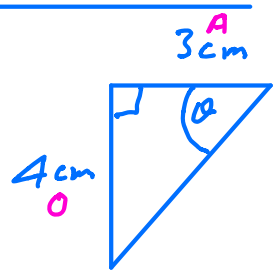
$$\cos 41^\circ = \frac{12}{x}$$

$$x\cos 41^\circ = 12$$

$$x = \frac{12}{\cos 41^\circ}$$

$$x = 15.9 \text{ m}$$

Example 3



Find θ

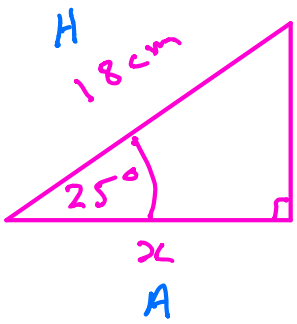
$\tan = \frac{O}{A}$

$$\tan\theta = \frac{4}{3}$$

$$\theta = \tan^{-1}\left(\frac{4}{3}\right)$$

$$\theta = 53.1^\circ$$

Exercise



Find x

$$\cos = \frac{A}{H}$$

$$\cos 25^\circ = \frac{x}{18}$$

$$18\cos 25^\circ = x$$

$$x = 16.3\text{ cm}$$