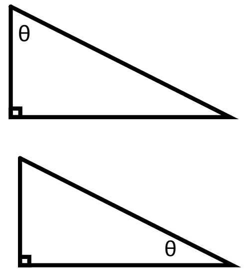
Lesson 4.0: Review of Trigonometry

Recall: In a right triangle, the primary trig ratios are:

sine $\sin\theta =$

cosine $\cos\theta =$

tangent $\tan\theta =$

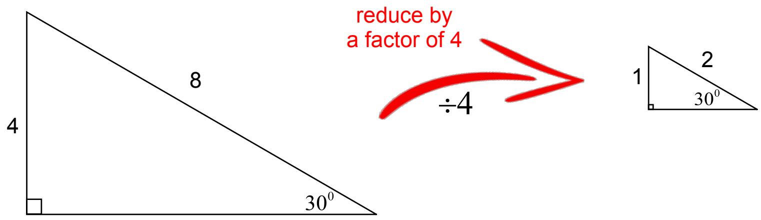


adj

opp

hyp

These ratios compare the lengths of the sides of a triangle. Trig stems from similar triangles. Any right triangle with a 30 ^{0} angle (for example), whatever its size, will have the same ratio of sides lengths because the angles are the same!



$\sin 30^0 =$

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Recall: To "solve a triangle" means to find the measures of all 3 sides and all 3 angles.

Ex. 1 In ΔABC, <A = 90°, <B = 32°, and c = 19.2 cm. Solve the triangle. Include a well-labelled diagram.

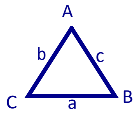
Ex. 2 In ΔDEF, <E = 90°, d = 4.3 m, and e = 5.9 m. Solve for $< F$.

But what if the triangle is not right-angled?

Recall:

The Sine Law

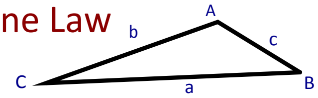
In ΔABC,



$$\frac{a}{sinA}=\frac{b}{\sin B}=\frac{c}{\sin C} \quad or \quad \frac{\sin A}{a}=\frac{\sin B}{b}=\frac{\sin C}{c}$$

The Cosine Law

In ΔABC,



$c^2 = a^2 + b^2 - 2ab\cos C$ rearrange --> $\cos C = \dfrac{a^2+b^2-c^2}{2ab}$

(Used when finding a side). (Used when finding an angle).

We will derive these formulas in lesson 4.4 A

Ex. 3 Solve for c in ΔABC, if <A = 67º, a = 7.2 cm, and b = 7.0 cm.

Ex. 4 Solve for the unknown angle θ.