

Cheatography

Trigonometry Year 10 Cheat Sheet

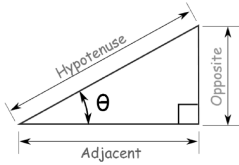
by enfoiree (enfoiree_) via cheatography.com/166759/cs/34910/

Trigonometric Functions

$$\sin \theta = \frac{\text{Opposite}}{\text{Hypotenuse}}$$

$$\cos \theta = \frac{\text{Adjacent}}{\text{Hypotenuse}}$$

$$\tan \theta = \frac{\text{Opposite}}{\text{Adjacent}}$$



*adjacent and opposite labels can change depending on the angle being found

Pythagoras Theorem

$$c^2 = a^2 + b^2 \quad c = \sqrt{a^2 + b^2}$$

$$a^2 = c^2 - b^2 \quad a = \sqrt{c^2 - b^2}$$

$$b^2 = c^2 - a^2 \quad b = \sqrt{c^2 - a^2}$$

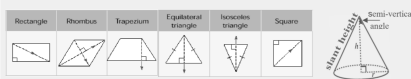
c is the hypotenuse whereas a and b can be switched interchangeably

Pythagoras in 3 Dimensions

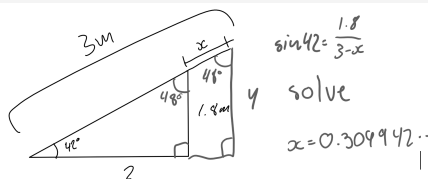
The Pythagorean Theorem can also be used in three dimensions to find the diagonal length of a rectangular prism

$$d = \sqrt{x^2 + y^2 + z^2}$$

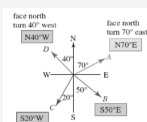
Finding right angles in general shapes



Example X



True Bearings



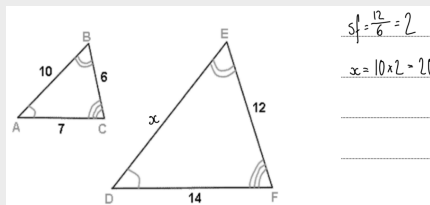
Similarity Test for Similar Triangles

Scale Factor

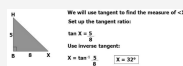
Scale factor is the ratio between the scale of a given original object and a new object, which is its representation but of a different size (bigger or smaller).

$$sf = \frac{\text{larger figure dimensions}}{\text{smaller figure dimensions}}$$

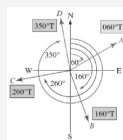
Example of Scale Factor



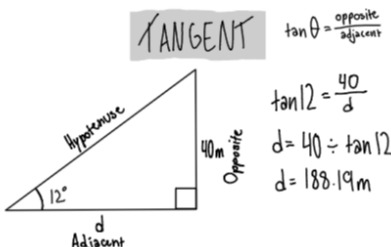
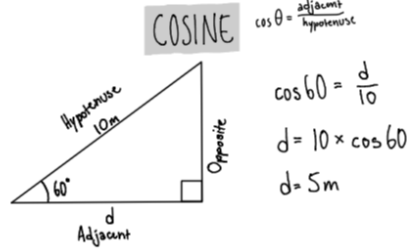
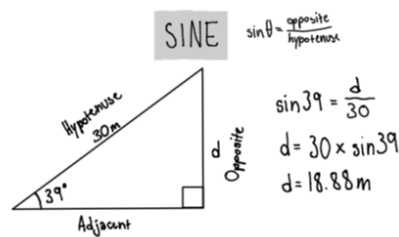
Example of Inverse



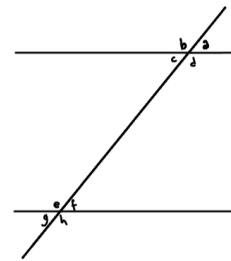
Conventional Bearings



Examples of Trigonometric functions



Examples of Angles

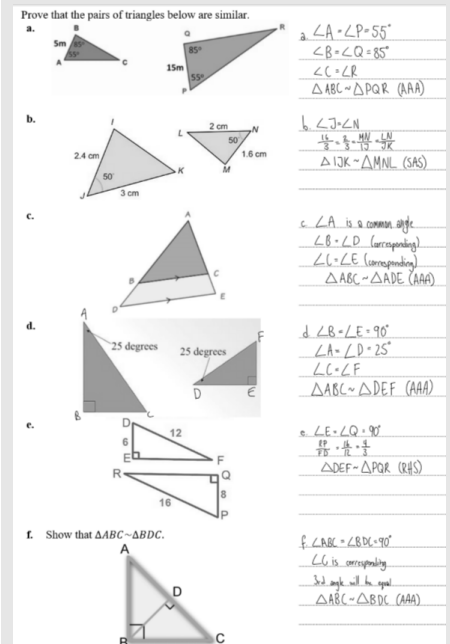


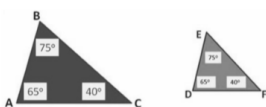
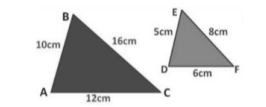
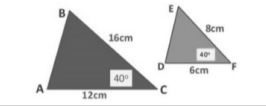
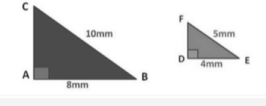
$a = c = f = g$
 $b = d = e = h$
corresponding:
 a & f
 b & e
 c & g
 c & h
alternate:
 d & e
 c & f

Corresponding: Equal the same

Alternate: Equals 180

Examples of Similar Triangles



AAA Rule 	$\angle A = \angle D = 65^\circ$ $\angle B = \angle E = 75^\circ$ $\angle C = \angle F = 40^\circ$ $\triangle ABC \sim \triangle DEF$ by the AAA Rule.
SSS Rule 	$\frac{AB}{DE} = \frac{10}{5} = 2$ $\frac{BC}{EF} = \frac{16}{8} = 2$ $\frac{AC}{DF} = \frac{12}{6} = 2$ $\triangle ABC \sim \triangle DEF$ by the SSS Rule.
SAS Rule 	$\frac{BC}{EF} = \frac{16}{8} = 2$ $\angle C = \angle F = 40^\circ$ $\frac{AC}{DF} = \frac{12}{6} = 2$ $\triangle ABC \sim \triangle DEF$ by the SAS Rule.
RHS Rule 	$\angle A = \angle D = 90^\circ$ $\frac{BC}{EF} = \frac{10}{5} = 2$ $\frac{AB}{DE} = \frac{8}{4} = 2$ $\triangle ABC \sim \triangle DEF$ by the RHS Rule.



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