

Cheatography

Trigonometry Year 10 Cheat Sheet

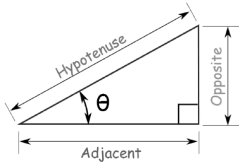
by enfoiree (enfoiree_) via cheatography.com/166759/cs/34910/

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

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

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

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

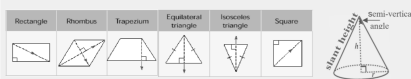
c is the hypotenuse whereas a and b can be switched interchangeably

Pythagoras in 3 Dimensions

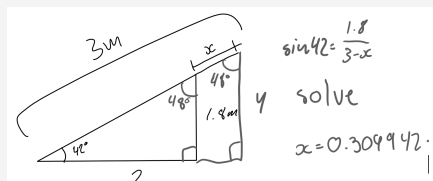
The Pythagorean Theorem can also be used in three dimensions to find the diagonal length of a rectangular prism

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

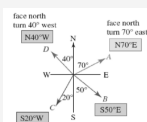
Finding right angles in general shapes



Example X



True Bearings



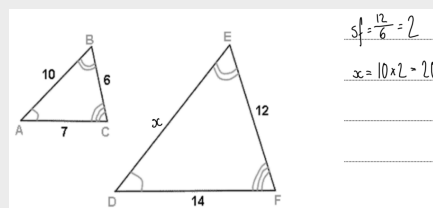
Similarity Test for Similar Triangles

Scale Factor

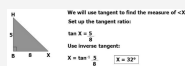
Scale factor is the ratio between the scale of a given original object and a new object, which is its representation but of a different size (bigger or smaller).

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

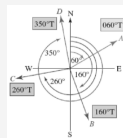
Example of Scale Factor



Example of Inverse



Conventional Bearings



Examples of Trigonometric functions

SINE $\sin \theta = \frac{\text{opposite}}{\text{hypotenuse}}$

$\sin 39 = \frac{d}{30}$
 $d = 30 \times \sin 39$
 $d = 18.88m$

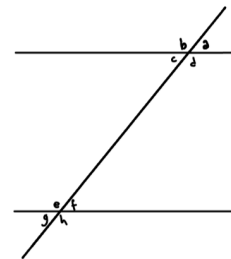
COSINE $\cos \theta = \frac{\text{adjacent}}{\text{hypotenuse}}$

$\cos 60 = \frac{d}{10}$
 $d = 10 \times \cos 60$
 $d = 5m$

TANGENT $\tan \theta = \frac{\text{opposite}}{\text{adjacent}}$

$\tan 12 = \frac{40}{d}$
 $d = 40 \div \tan 12$
 $d = 188.19m$

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

Prove that the pairs of triangles below are similar.

a.

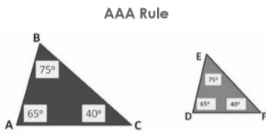
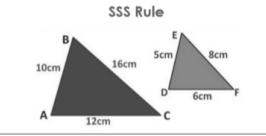
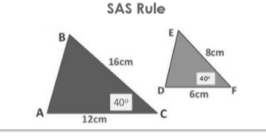
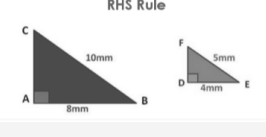
b.

c.

d.

e.

f. Show that triangle ABC ~ triangle BDC.

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



By **enfoiree** (enfoiree_)
cheatography.com/enfoiree/

Published 27th October, 2022.
 Last updated 28th October, 2022.
 Page 1 of 2.

Sponsored by **CrosswordCheats.com**
 Learn to solve cryptic crosswords!
<http://crosswordcheats.com>