Complementary and Supplementary Angles

If the sum of 2 angles is 90^0 (a right angle), then the angles are complementary.

If the sum of 2 angles is 180^0 (a straight angle), then the angles are supplementary.

Given an angle with x^0

What is its complement in terms of x? $90 - x$

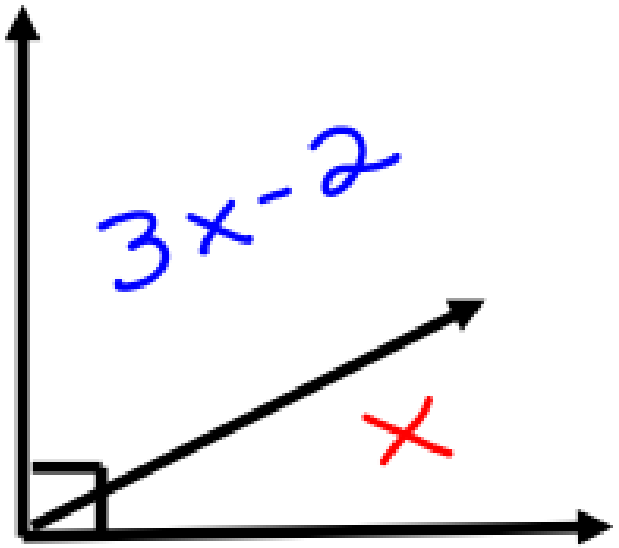
What is its supplement in terms of x? $180 - x$

Angles can be measured in degrees, minutes, and seconds.

Example: Angle measure of $13^o21'34''$ is read as 13 degrees, 21 minutes, and 34 seconds

There are 60 seconds in 1 minute and 60 minutes in 1 degree.

Example 1: The larger of two complementary angles exceeds the smaller by 3 times less 2. Find the measurements of both angles.



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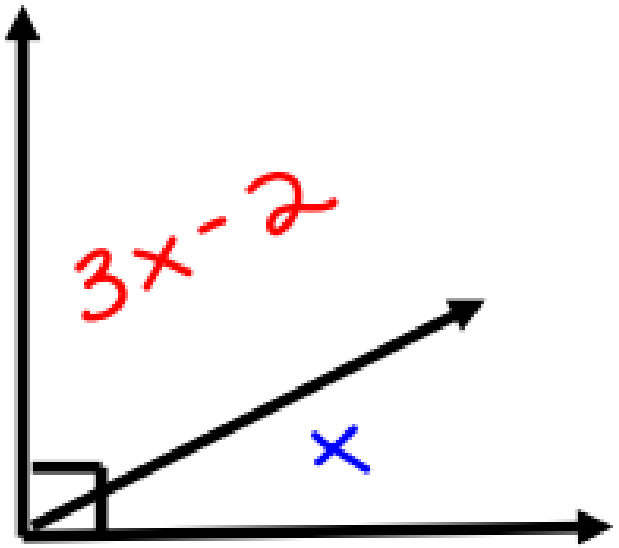

$x + 3x - 2 = 90$

$4x - 2 = 90$

$4x = 92$

$x = 23$

$\angle 1 = x = 23°$

$\angle 2 = 3x - 2 = 67°$

✓ $23 + 67 = 90$

Example 2: Three times the supplement of an angle less five times its complement is 140^0. Find the measure of the complement and supplement angles.

Supplement of the angle _____

Complement of the angle _____

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Supplement of the angle $180 - x$ $(180-25) = 155°$

Complement of the angle $90 - x$ $(90-25) = 65°$

$$3(180-x) - 5(90-x) = 140$$

$$540 - 3x - (450 - 5x) = 140$$

$$540 - 3x - 450 + 5x = 140$$

$$2x + 90 = 140$$

$$2x = 50$$

$$x = 25$$