Panel 1 (top-left):

Find the EXACT values of w and y.

8   w

45°   30°

y

HYPOT of 45-45-90

8

$X = 4\sqrt{2}$

Leg of 45-45-90   also SL of 30-60-90

45°   30°
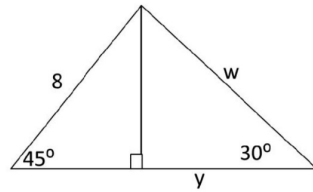
Not drawn to scale.
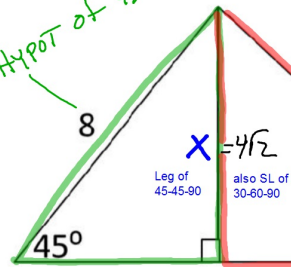
LL of 30-60-90

$$X = \frac{8}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{8\sqrt{2}}{2} = 4\sqrt{2}$$

w = hypot of 30-60-90

$= 4\sqrt{2} \cdot 2 = \boxed{8\sqrt{2}}$

$y = LL = 4\sqrt{2} \cdot \sqrt{3} = \boxed{4\sqrt{6}}$

Panel 2 (top-right):

Angles are labeled with: Capital Letters   A   B   C

Sides are labeled with: lower case Letters   a   b   c

Panel 3 (bottom-left):

B

a   c

C   b   A
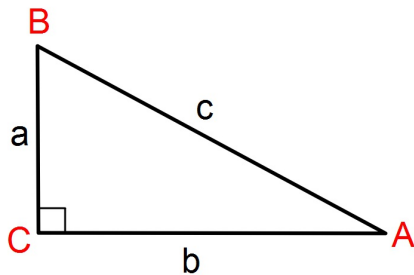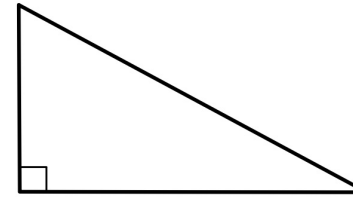
Side a is opposite Angle A
Side b is opposite Angle B
Side c is opposite Angle C

Panel 4 (bottom-right):

Sec 14-3:   Right Triangles and Trigonometric Ratios

What is true about angles x and y of EVERY right triangle?

y

x
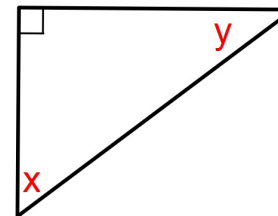
- x and y are acute
- x and y are complementary

Trigonometry

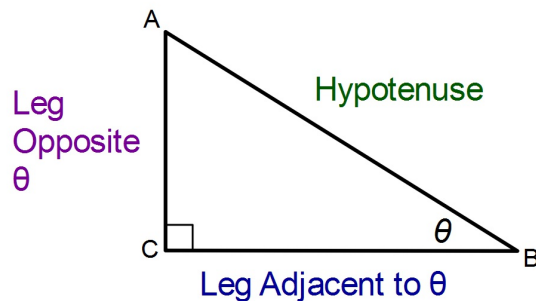"branch of mathematics that deals with relations between sides and angles of triangles,"

from Modern Latin trigonometria

from Greek *trigonon*

"triangle" (from tri- "three," + gonia "angle,") + metron "a measure" .

Find each to the nearest hundredth.

Cos A = Cos 52°
= 0.62

Sin A = Sin 52°
= 0.79

Tan B = Tan 38°
= 0.78

52°

90 − 52
= 38°
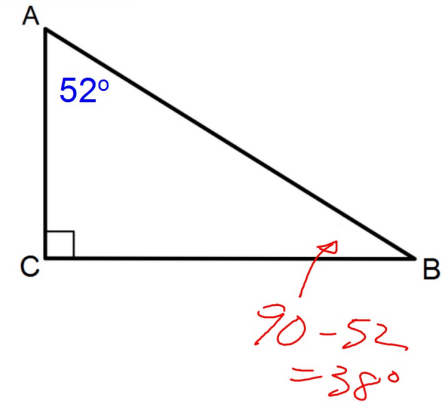
When you have an angle measured in degrees you must be sure that your calculator is in "Degree Mode".

θ Greek letter - Theta
variable commonly used to represent an angle.

Hypotenuse

Leg Opposite θ

Leg Adjacent to θ

θ

Right Triangle Trigonometry:

SOHCAHTOA
SOHCAHTOA

θ
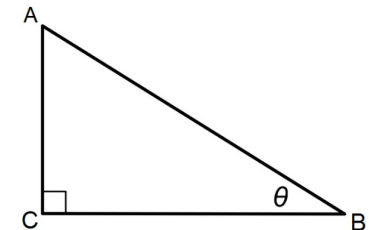
Sine of an angle

$\text{Sin}\theta = \dfrac{\text{Leg Opposite } \theta}{\text{Hypotenuse}}$

$= \dfrac{AC}{AB}$

Cosine of an angle

$\text{Cos}\theta = \dfrac{\text{Leg Adjacent to } \theta}{\text{Hypotenuse}}$
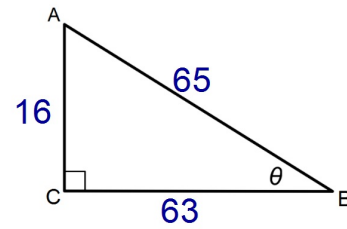
$= \dfrac{BC}{AB}$

Tangent of an angle

$\text{Tan}\theta = \dfrac{\text{Leg Opposite } \theta}{\text{Leg Adjacent to } \theta}$

$= \dfrac{AC}{BC}$

Write each trigonomeric ratio as a fraction.

Tan B =   Cos A =

Sin B =

SOH CAH TOA

Tan B = $\dfrac{16}{63}$ Cos A = $\dfrac{16}{65}$ Sin B = $^{16}/_{65}$

OPP Leg

adj Leg

Adj leg

hypot

OPP leg

hypot