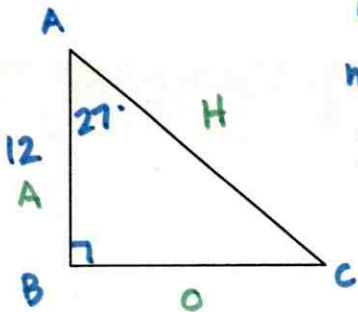


Solve Right Triangles

Vocabulary	Definition	Example
<p>SOLVE a RIGHT TRIANGLE</p>	<p>To solve a right triangle is to find the measures of all its sides and angles.</p>	<div style="display: flex; justify-content: space-between;"> <div style="width: 30%;">  </div> <div style="width: 30%;"> <p> $m\angle A = 27^\circ$ $m\angle C = 63^\circ$ $\angle C = 90 - 27$ </p> </div> <div style="width: 30%;"> <p> $AB = 12$ $BC = 6.1$ $AC = 13.5$ </p> <p> $\tan(27) = \frac{BC}{12}$ $\cos(27) = \frac{12}{AC}$ </p> </div> </div> <p style="text-align: right; font-size: small;">what if they give 2 side? use $c^2 = a^2 + b^2$</p>

HOW to FIND MISSING ANGLES

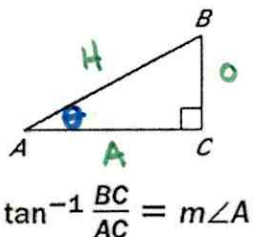
INVERSE TRIGONOMETRIC RATIOS

Let $\angle A$ be an acute angle.

Inverse Tangent If $\tan A = x$, then $\tan^{-1} x = m\angle A$.

Inverse Sine If $\sin A = y$, then $\sin^{-1} y = m\angle A$.

Inverse Cosine If $\cos A = z$, then $\cos^{-1} z = m\angle A$.



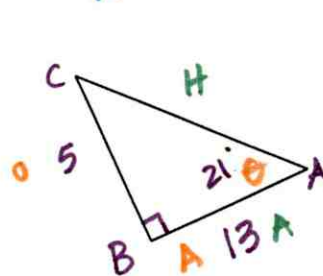
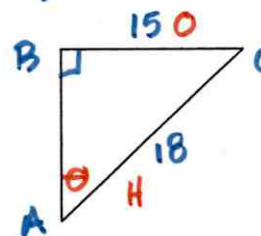
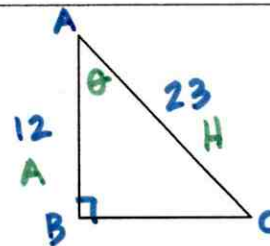
$\sin^{-1} \frac{BC}{AB} = m\angle A$

$\cos^{-1} \frac{AC}{AB} = m\angle A$

$\theta = \tan^{-1} \left(\frac{O}{A} \right)$

$\theta = \sin^{-1} \left(\frac{O}{H} \right)$

$\theta = \cos^{-1} \left(\frac{A}{H} \right)$



$\cos(21) = \frac{13}{AC}$

$AC = 13.9$

$AC = 13 \dots$

$\cos(21)$

Name _____

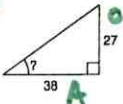
Date _____ Period _____

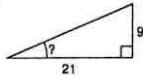
Inverse Trigonometric Ratios

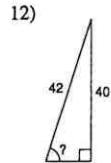
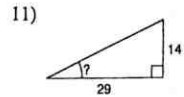
Find each angle measure to the nearest degree.

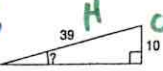
- 1) $\sin B = 0.4848$
- 2) $\sin A = 0.5150$
- 3) $\cos A = 0.7431$
- 4) $\cos W = 0.6157$
- 5) $\cos A = 0.5878$
- 6) $\tan W = 19.0811$
- 7) $\cos A = 0.4226$
- 8) $\tan W = 0.5317$

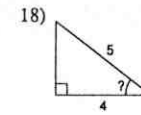
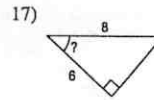
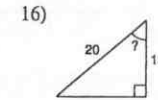
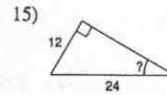
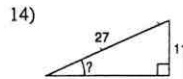
Find the measure of the indicated angle to the nearest degree.


9)  $\theta = \tan^{-1}\left(\frac{27}{38}\right)$
 $\theta = 35^\circ$

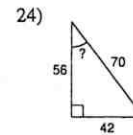
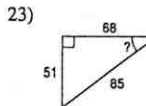
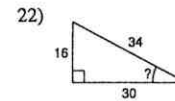
10) 



13) 
 $\theta = \sin^{-1}\left(\frac{10}{39}\right)$
 $\theta = 15^\circ$



20) 
 $\theta = \cos^{-1}\left(\frac{51}{85}\right)$
 $\theta = 53^\circ$



Critical thinking questions:

25) Find an angle x where $\sin x = \cos x$.

26) Draw and label all three sides of a right triangle that has a 40° angle and a hypotenuse of 10 cm.