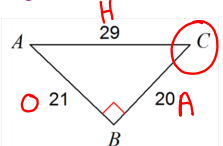


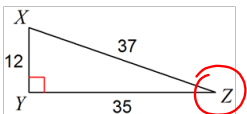
Inverse Trigonometric Ratios

Use the diagrams shown to find the trigonometric ratio.

$\tan \angle C = \frac{21}{20}$



$\cos \angle Z = \frac{35}{37}$



How do we find the measures of angle C and angle Z?

title

review

To find the measure of an acute angle in a right triangle, we need to "undo" the trigonometric ratio.

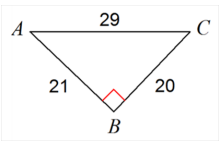
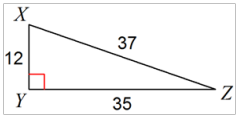
Inverse Trigonometric Ratios

- To "undo" sine, we use its inverse, or \sin^{-1} . *arcsin*
- To "undo" cosine, we use its inverse, or \cos^{-1} . *arccos*
- To "undo" tangent, we use its inverse, or \tan^{-1} . *arctan*

Use the diagrams shown to find the measure of the acute angle.

$\tan \angle C = \frac{21}{20}$
 $\angle C = \tan^{-1}\left(\frac{21}{20}\right)$
 $\angle C = 46.40^\circ$

$\cos \angle Z = \frac{35}{37}$
 $\angle Z = \cos^{-1}\left(\frac{35}{37}\right)$
 $\angle Z = 18.92^\circ$

inverse trig ratios

examples

Find the value of x . Round to the nearest hundredth.

$\tan x^\circ = \frac{12}{9}$
 $x = \tan^{-1}\left(\frac{12}{9}\right)$
 $x = 53.13^\circ$

$\sin x^\circ = \frac{20}{22}$
 $x = 65.38^\circ$

$\cos x^\circ = \frac{8}{16}$
 $x = 27.27^\circ$

examples

Some extra facts:

- The "-1" superscripts are labels, NOT powers or exponents.
- Alternate forms:
 - \sin^{-1} : asin or arcsin
 - \cos^{-1} : acos or arccos
 - \tan^{-1} : atan or arctan

extra facts

Conclusion

1. How do we find an angle when we have the ratio of the sides? *arc trig function*
2. Where is that button located on your calculator? *Hit trig function twice*
3. Questions????

Assignment
Inverse Trig. Wkst