6.5 Guided Notes

$SH^{O^{-1}}\ CH^{A^{-1}}\ TA^{O^{-1}}$

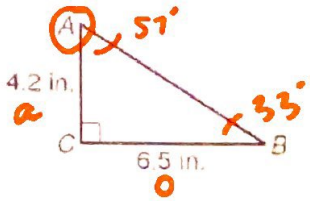
SOH CAH TOA – Missing Angles

Q: What are the inverse trig functions used for?

- TO find the missing ∠ measures of a right Δ.

Inverse Trigonometric Functions
If $\sin A = x$, then $\sin^{-1} x = m\angle A$.
If $\cos A = x$, then $\cos^{-1} x = m\angle A$.
If $\tan A = x$, then $\tan^{-1} x = m\angle A$.

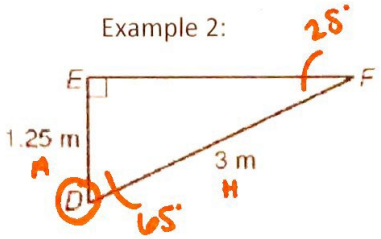
Example 1:



$m\angle A$: $\tan^{-1}\left(\frac{6.5}{4.2}\right) \approx 57°$

$m\angle B$: $90 - 57 = 33°$

Example 2:



$m\angle D$: $\cos^{-1}\left(\frac{1.25}{3}\right) \approx 65°$

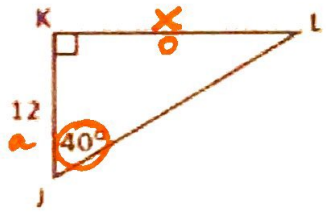
$m\angle F$: $90 - 65 = 25°$

Example 3:

$m\angle K = 90 - 73 = 17°$

What do Trig Functions allow you to find?	What do Inverse Trig Functions allow you to find?
missing sides!	missing angles!

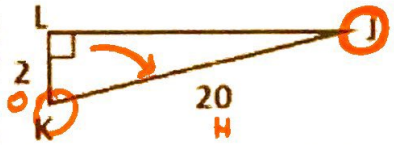
Find the length of KL



$\tan 40 = \frac{x}{12}$

$12 \tan 40 = 10.07$

Find the measure of angle J.

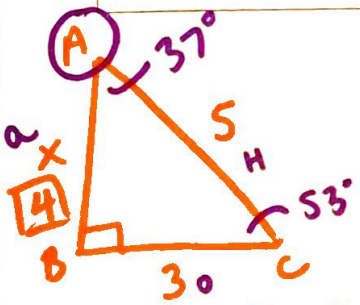


$\sin^{-1}\left(\frac{2}{20}\right) \approx 6°$

$m\angle K = 90 - 6 = 84°$

Solve the Right Δ!

DRAW A RIGHT TRIANGLE WITH POINTS A, B, & C TO REPRESENT EACH SET OF GIVEN INFORMATION. GIVEN B IS THE RIGHT ANGLE.



$x^2 + 3^2 = 5^2$

$x^2 + 9 = 25$

$-9 \quad -9$

$x^2 = 16$

$x = 4$

$\sin A = \frac{3}{5}$ O/H

$m\angle A$: $\sin^{-1}\left(\frac{3}{5}\right) \approx 37°$

$m\angle C$: $90 - 37 = 53°$

$\tan C = \frac{3}{4}$