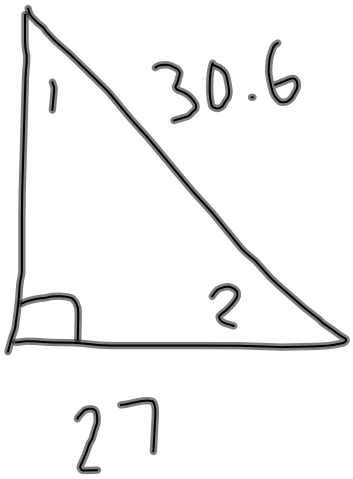
8.3 Solving r.t. Δ's

Ex: Use the given trig ratio to determine which ∠ of the Δ is ∠A.



$\sin A = \frac{8}{17} = \frac{14}{30.6}$

(2)

$\tan A = 1.875 = \frac{27}{14.4}$

(1)

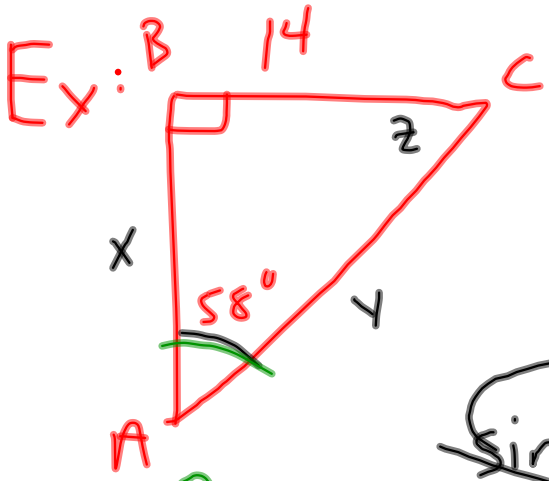
Inverse Trig ratios

i) if $\sin A = x$, then $\sin^{-1} x = m\angle A$

ii) if $\cos A = x$, then $\cos^{-1} x = m\angle A$

iii) if $\tan A = x$, then $\tan^{-1} x = m\angle A$

- Inverse trig ratios give us the angle measure knowing only the side lengths.

Ex: 

Find all unknown measures.

$z = 90 - 58 = 32°$

$\tan 58 = \frac{14}{x}$

$x \tan 58 = 14$

$\frac{x \tan 58}{\tan 58} = \frac{14}{\tan 58}$

$x = 8.75$

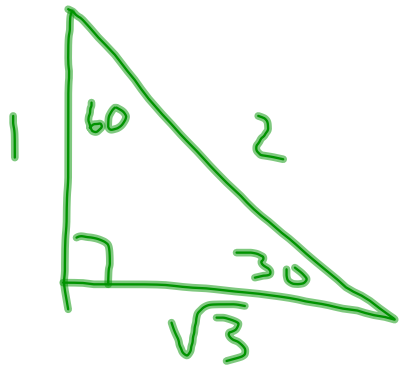
$\sin 58 = \frac{14}{y}$

$\frac{y \sin 58}{\sin 58} = \frac{14}{\sin 58}$

$y = 16.51$

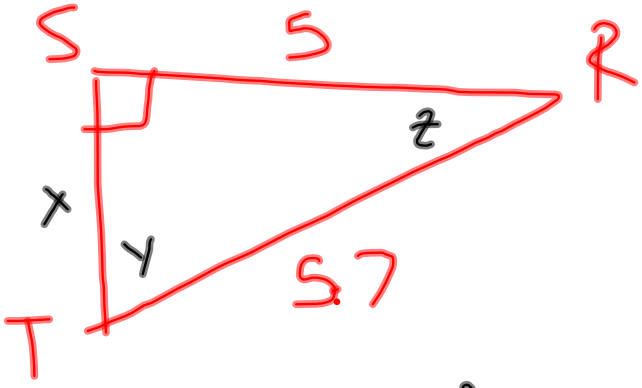
$\cos^{-1}.5 = 60$

$\cos 60 = \frac{1}{2}$



$\sin^{-1}.85 = 58.21°$

$\tan^{-1}3.2 = 72.64°$



$\cos^{-1}\frac{5}{5.7} = z$

$28.7° = z$

$5^2 + x^2 = 5.7^2$

$25 + x^2 = 32.49$

$-25 \quad -25$

$\sqrt{x^2} = \sqrt{7.49}$

$x = 2.74$

$\tan^{-1}\frac{5}{2.74} = y$

$y = 61.3°$

p. 537 2-14 even
21-35 odd
all for extra
credit