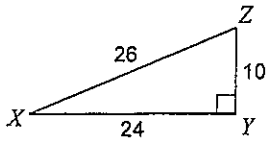
Honors Geometry Name KEY

Section 8.3 Review - Solving Right Triangles

Date _____ Period ____

Find the value of each trigonometric ratio.

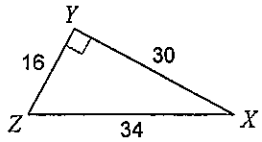
1) $\cos X$



$\cos X = \frac{24}{26}$

$\cos X = \frac{12}{13}$

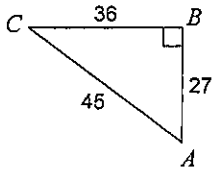
2) $\tan Z$



$\tan Z = \frac{30}{16}$

$\tan Z = \frac{15}{8}$

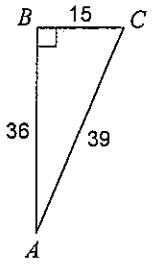
3) $\sin A$



$\sin A = \frac{36}{45}$

$\sin A = \frac{4}{5}$

4) $\tan A$

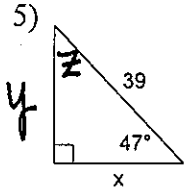


$\tan A = \frac{15}{36}$

$\tan A = \frac{5}{12}$

Solve each triangle. Round to the nearest thousandths. You must show all work! Round ∠s to nearest degree!

5)



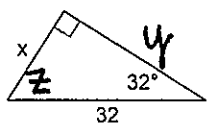
$X = 26.598$
$y = 28.523$
$Z = 43°$

$\sin 47 = \frac{y}{39}$ $\quad \cos 47 = \frac{x}{39}$

$y = 39 \sin 47$ $\quad x = 39 \cos 47$

$y = 28.523$ $\quad x = 26.598$

6)

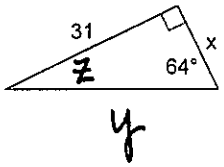


$x = 16.957$
$y = 27.138$
$Z = 58°$

$\sin 32 = \frac{x}{32}$ $\quad \cos 32 = \frac{y}{32}$

$x = 32 \sin 32$ $\quad y = 32 \cos 32$

$x = 16.957$ $\quad y = 27.138$

7) 

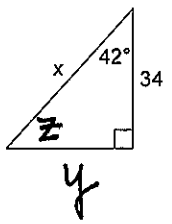
$x = 15.120$
$y = 34.491$
$z = 26°$

$\sin 64 = \frac{31}{y}$ $\quad \tan 64 = \frac{31}{x}$

$y \cdot \sin 64 = 31$ $\quad x \tan 64 = 31$

$y = \frac{31}{\sin 64}$ $\quad x = \frac{31}{\tan 64}$

$y = 34.491$ $\quad x = 15.120$

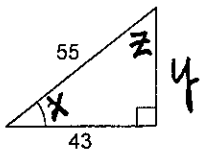
8) 

$x = 45.752$
$y = 30.614$
$z = 48°$

$\cos 42 = \frac{34}{x}$ $\quad \tan 42 = \frac{y}{34}$

$x \cos 42 = 34$ $\quad 34 \tan 42 = y$

$x = 45.752$ $\quad y = 30.614$

9) 

$x = 39°$
$y = 34.293$
$z = 51°$

$\cos x = \frac{43}{55}$

$x = \cos^{-1}(43/55)$

$x = 38.573$

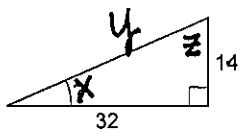
$\approx 39°$

$43^2 + y^2 = 55^2$

$1849 + y^2 = 3025$

$y^2 = 1176$

$y = 34.293$

10) 

$x = 24°$
$y = 34.928$
$z = 66°$

$\tan x = \frac{14}{32}$

$\tan^{-1}(14/32) = x$

$x = 23.629$

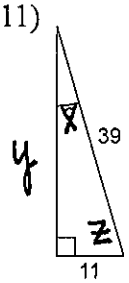
$\approx 24°$

$32^2 + 14^2 = y^2$

$1024 + 196 = y^2$

$1220 = y^2$

$y = 34.928$

11) 

$\sin x = \frac{11}{39}$

$\sin^{-1}(11/39) = x$

$x = 16.383$

$\approx 16°$

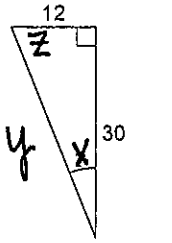
$x = 16°$
$y = 37.417$
$z = 74°$

$11^2 + y^2 = 39^2$

$121 + y^2 = 1521$

$y^2 = 1400$

$y = 37.417$

12) 

$x = 22°$
$y = 32.311$
$z = 68°$

$12^2 + 30^2 = y^2$

$144 + 900 = y^2$

$1044 = y^2$

$y = 32.311$

$\tan x = \frac{12}{30}$

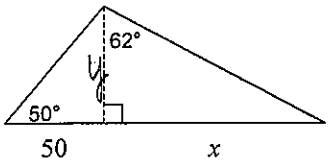
$\tan^{-1}(12/30) = x$

$x = 21.801$

$\approx 22°$

Find the length of the side labeled *x*. Round intermediate values to the nearest thousandth. Use the rounded values to calculate the next value. Round your final answer to the nearest thousandth.

13)



$\tan 50 = \frac{y}{50}$

$50 \tan 50 = y$

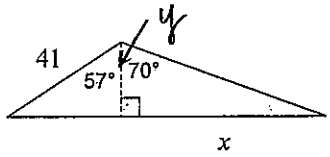
$y = 59.588$

$\tan 62 = \frac{x}{59.588}$

$59.588 \tan 62 = x$

$x = 112.069$

14)



$\cos 57 = \frac{y}{41}$

$41 \cos 57 = y$

$y = 22.330$

$\tan 70 = \frac{x}{22.330}$

$22.330 \tan 70 = x$

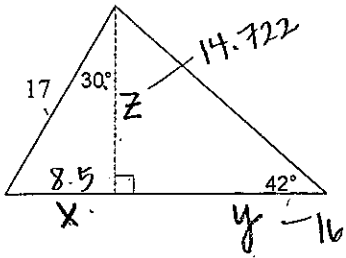
$x = 61.351$

Find the area of each triangle. Round intermediate values to the nearest thousandth. Use the rounded values to calculate the next value. Round your final answer to the nearest thousandth.

NOT SIMILAR Δs!!

$A = \frac{1}{2}bh$

15)



$\sin 30 = \frac{x}{17}$ $\quad \cos 30 = \frac{z}{17}$

$17 \sin 30 = x$ $\quad 17 \cos 30 = z$

$x = 8.5$ $\quad z = 14.722$

$\tan 42 = \frac{14.722}{y}$

$y \tan 42 = 14.722$

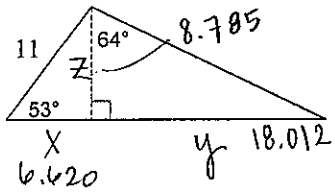
$y = \frac{14.722}{\tan 42}$

$y = 16.350$

$A = \frac{1}{2}(24.85)(14.722)$

$A = 182.921 \text{ un}^2$

16)



$\cos 53 = \frac{x}{11}$ $\quad \sin 53 = \frac{z}{11}$

$11 \cos 53 = x$ $\quad 11 \sin 53 = z$

$x = 6.620$ $\quad z = 8.785$

$\tan 64 = \frac{y}{8.785}$

$8.785 \tan 64 = y$

$y = 18.012$

$A = \frac{1}{2}(24.632)(8.785)$

$A = 108.196 \text{ un}^2$