Name _____ Date _____

* We solved for SIDES of triangles by using: sin, cos, and tan. We will solve for ANGLES by using $\sin^{-1}$, $\cos^{-1}$, and $\tan^{-1}$.

$\sin^{-1}(x)$ is read as "the inverse sine of x". Do not confuse $\sin^{-1}(x)$ as $\sin(x)$ having an exponent of -1.

1) Use a calculator to approximate the measures of the angles. Round your **final** answers to the nearest hundredth, if needed.

A) $\tan A = 0.75$

36.87

B) $\sin B = 0.87$

60.46

C) $\cos C = 0.15$

81.37

D) $\tan G = 0.43$

23.27

E) $\sin H = 0.68$

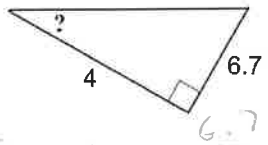
42.84

F) $\cos K = 0.94$

19.95

2) Approximate the measures of the angles. Round your **final** answers to the nearest hundredth, if needed.

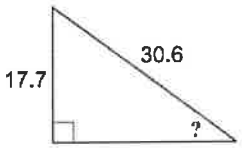
A)



TAN X = 6.7 / 4

59.16

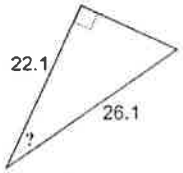
B)



SIN X = 17.7 / 30.6

35.34

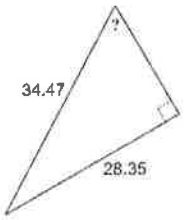
C)



COS X = 22.1 / 26.1

32.14

D)



SIN X = 28.35 / 34.47

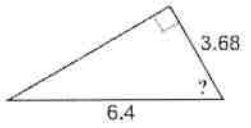
55.33

E)

TAN X = 314 / 478

33.30

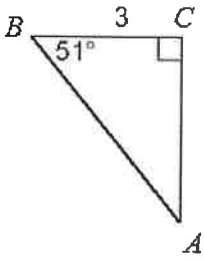
F)



COS X = 3.68 / 6.4

54.90

3) Use your knowledge of Pythagorean Theorem, Triangle Sum Theorem, and Right Triangle Trigonometry to solve each triangle (find all missing angles and sides). Remember to keep all trig values to three decimals, minimum. Round your **final** answers to the nearest hundredth, if needed. Sides and angles opposite each other are commonly referred to using the same letter, with angles using a capital and side using a lowercase (i.e. opposite angle B, is side *b*).



$\cos 51 = \frac{3}{c}$

$c = 4.77$

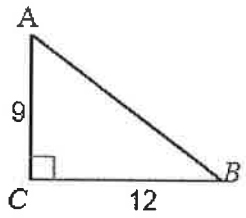
$\tan 51 = \frac{b}{3}$

$3.70 = b$

A= 39 a= 3

B= 51 b= 3.70

C= 90 c= 4.77



$9^2 + 12^2 = c^2$

$81 + 144 = c^2$

$225 = c^2$

$15 = c$

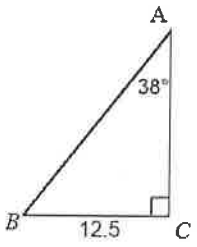
$\tan A = \frac{12}{9}$

$A = 53.13$

A= 53.13 a= 12

B= 36.87 b= 9

C= 90 c= 15



$\tan 38 = \frac{12.5}{b}$

$b = 16.0$

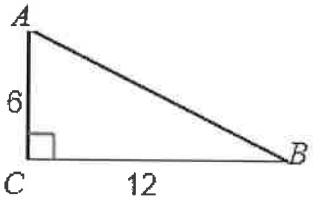
$(12.5)^2 + (16)^2 = c^2$

$20.30 = c$

A= 38 a= 12.5

B= 52 b= 16.0

C= 90 c= 20.30



A= 63.43 a= 12

B= 26.57 b= 6

C= 90 c= 13.42