Name_____

Using Trigonometry to Find Angle Measures

Date_____ Period____

Find each angle measure to the nearest degree.

1) $\tan A = 2.0503$

64°

2) $\cos Z = 0.1219$

83°

3) $\tan Y = 0.6494$

33°

4) $\sin U = 0.8746$

61°

5) $\cos V = 0.6820$

47°

6) $\sin C = 0.2756$

16°

* use inverse!

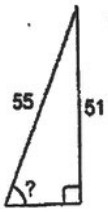
$\tan^{-1}(\ )$

$\sin^{-1}(\ )$

$\cos^{-1}(\ )$

Find the measure of the indicated angle to the nearest degree.

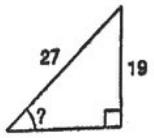
7)



$\sin\theta = \frac{51}{55}$

$\theta = 68^\circ$

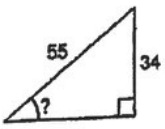
8)



$\sin\theta = \frac{19}{27}$

$\theta = 45^\circ$

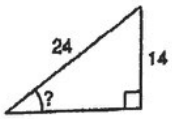
9)



$\sin\theta = \frac{34}{55}$

$\theta = 38^\circ$

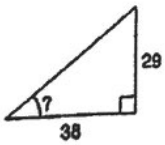
10)



$\sin\theta = \frac{14}{24}$

$\theta = 36^\circ$

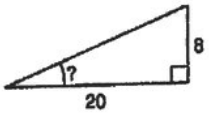
11)



$\tan\theta = \frac{29}{38}$

$\theta = 37^\circ$

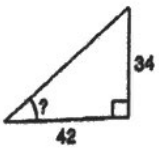
12)



$\tan\theta = \frac{8}{20}$

$\theta = 22^\circ$

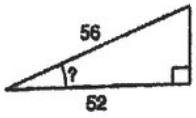
13)



$\tan\theta = \frac{34}{42}$

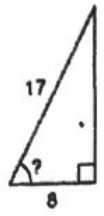
$\theta = 39^\circ$

14)



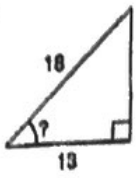
$\cos\theta = \frac{52}{56}$

$\theta = 22^\circ$

15) 

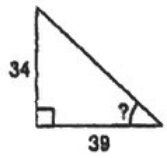
$\cos\theta = \frac{8}{17}$

$\theta = 62^\circ$

16) 

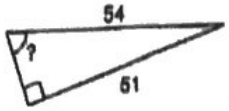
$\cos\theta = \frac{13}{18}$

$\theta = 44^\circ$

17) 

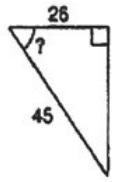
$\tan\theta = \frac{34}{39}$

$\theta = 41^\circ$

18) 

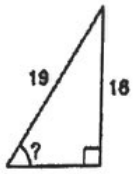
$\sin\theta = \frac{51}{54}$

$\theta = 71^\circ$

19) 

$\cos\theta = \frac{26}{45}$

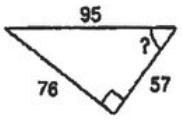
$\theta = 55^\circ$

20) 

$\sin\theta = \frac{16}{19}$

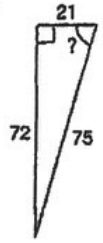
$\theta = 57^\circ$

*For 21-26, you choose!

21) 

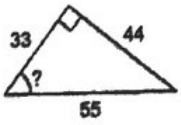
$\sin\theta = \frac{76}{95}$

$\theta = 53^\circ$

22) 

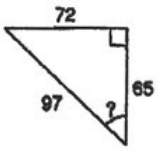
$\sin\theta = \frac{72}{75}$

$\theta = 74^\circ$

23) 

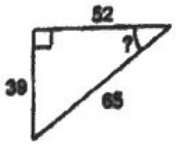
$\sin\theta = \frac{44}{55}$

$\theta = 53^\circ$

24) 

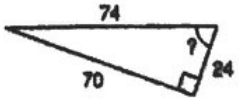
$\sin\theta = \frac{72}{97}$

$\theta = 48^\circ$

25) 

$\sin\theta = \frac{39}{65}$

$\theta = 37^\circ$

26) 

$\sin\theta = \frac{70}{74}$

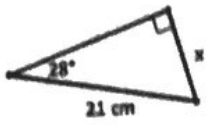
$\theta = 71^\circ$

NAME: _____

G.SRT.6 WORKSHEET #1 – PATTERSON

1. Solve for the side x. (Round all final answers to nearest hundredth)

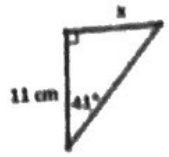
a)



$\sin 28 = \frac{x}{21}$

$x \approx 9.86$

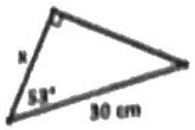
b)



$\tan 41 = \frac{x}{11}$

$x = 9.56$

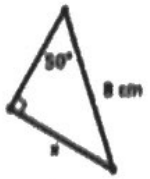
c)



$\cos 53 = \frac{x}{30}$

$x = 18.05$

d)

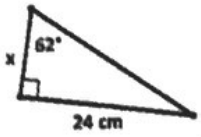


$\sin 30 = \frac{x}{8}$

$x = 6.13$

2. Solve for the side x. (Round all final answers to nearest tenth)

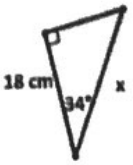
a)



$\tan 62 = \frac{24}{x}$

$x = 12.8$

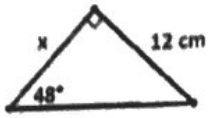
b)



$\cos 34 = \frac{18}{x}$

$x = 21.7$

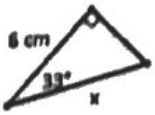
c)



$\tan 48 = \frac{12}{x}$

$x = 10.8$

d)

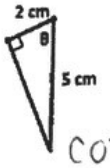


$\cos 33 = \frac{6}{x}$

$x = 7.2$

3. Solve for the missing information. (Round all final answers to nearest integer)

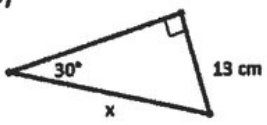
a)



$\cos\theta = \frac{2}{5}$

$\theta = 66^\circ$

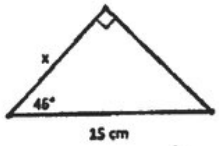
b)



$\sin 30 = \frac{13}{x}$

$x \approx 26$

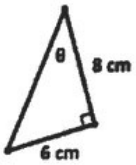
c)



$\cos 46 = \frac{x}{15}$

$x \approx 10$

d)



$\tan\theta = \frac{6}{8}$

$\theta = 37^\circ$

Sine & Cosine of Complementary Angles

Name_____

Directions: Be sure to show your work.

1. a) Explain why $\sin(x) = \cos(90 - x)$ when x represents an acute angle.

The acute ∠'s of a right triangle are always complementary. The sine of any acute angle is = to the cos of it's complement.

b) Is it ever possible that $\sin(x) = \cos(x)$? Explain your answer.

If $\sin(x) = \cos(x)$, x must be the complement of x.

$x + x = 90$

$2x = 90 \rightarrow x = 45$, yes it is possible & the ∠, x, must be 45°

2. In right ΔABC, $m\angle C = 90°$, if $\sin A = m$, find $\cos B$.

$\cos B = m$

3. Solve for θ (angles are acute):

a) $\cos 60° = \sin \theta$ 30°

b) $\sin 71° = \cos \theta$ 19°

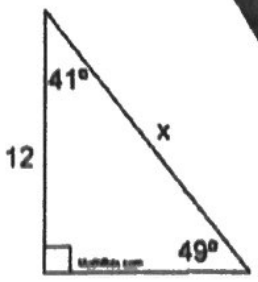
c) $\sin \theta = \cos (\theta + 20)$ 35°

d) $\sin (\theta - 60) = \cos \theta$ 75°

4. Given right triangle ABC with right angle C, and $\sin A = \frac{1}{4}$. Which of the following expressions are also equal to $\frac{1}{4}$? Select all that apply.

1. $\cos(A)$
2. $\cos(B)$
3. $\cos(90° - A)$
4. $\cos(90° - B)$
5. $\sin(B)$

5. In attempting to solve for x in the problem at the right, students responded with a variety of equations. Which, if any, of the following equations are correct? Select all that apply.



1. $\sin 49° = \frac{x}{12}$
2. $\cos 41° = \frac{12}{x}$
3. $\sin 41° = \frac{x}{12}$
4. $\cos 49° = \frac{12}{x}$
5. $\sin 49° = \frac{12}{x}$
6. None are true.

6. In right ΔABC, $m\angle C = 90°$, $\cos A = \frac{1}{5}$. What is $\sin B$?

$\frac{1}{5}$

7. In right ΔABC, $m\angle C = 90°$. Simplify the following expression: $\frac{\sin A - \cos B}{2}$

$\sin A = \cos B$ & by substitution, we have $\frac{\sin A - \sin A}{2} = \frac{0}{2} = 0$

8. Given that $\sin (x + 10)° = \cos (3x + 20)°$, find the number of degrees in the acute angles of the corresponding right triangle.

$25°$ and $65°$

9. In right ΔABC, $m\angle C = 90°$, $\sin A = 3x - 0.6$ and $\cos B = 4x - 0.9$. Find x.

$x = 0.3$

10. In right ΔABC, $m\angle C = 90°$ and $m\angle A$ does not equal the $m\angle B$. If $\sin A = m$ and $\cos A = k$, express the value of $\cos B + \sin B$.

$m + k$