Worsheet on section 5.2 and 5.3

Name_____

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

The point P(x, y) on the unit circle that corresponds to a real number t is given. Find the value of the indicated trigonometric function at t.

1) $\left(\frac{4}{7}, \frac{\sqrt{33}}{7}\right)$ Find sin t. 1) _____

2) $\left(\frac{5}{8}, \frac{\sqrt{39}}{8}\right)$ Find tan t. 2) _____

3) $\left(-\frac{\sqrt{65}}{9}, \frac{4}{9}\right)$ Find cot t. 3) _____

4) $\left(\frac{2}{9}, -\frac{\sqrt{77}}{9}\right)$ Find cos t. 4) _____

Use the unit circle to find the value of the trigonometric function.

5) $\sec\frac{7\pi}{6}$ 5) _____

6) $\cos\frac{\pi}{6}$ 6) _____

Find the exact value of the trigonometric function. Do not use a calculator.

7) $\cos\frac{5\pi}{4}$ 7) _____

8) $\sec\left(-\frac{9\pi}{4}\right)$ 8) _____

9) $\sec\frac{19\pi}{4}$ 9) _____

10) $-\tan\left(\frac{\pi}{4} + 12\pi\right)$ 10) _____

11) $\cos\left(-\frac{\pi}{4} - 1000\pi\right)$ 11) _____

Use even and odd properties of the trigonometric functions to find the exact value of the expression.

12) $\cot\left(-\frac{\pi}{6}\right)$ 12) _____

13) $\cot\left(-\frac{\pi}{3}\right)$ 13) _____

14) $\sec\left(-\frac{\pi}{6}\right)$ 14) _____

Use an identity to find the value of the expression. Do not use a calculator.

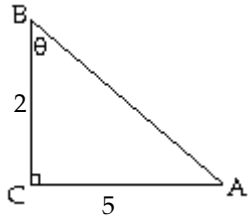
15) $\sec^2\frac{\pi}{4} - \tan^2\frac{\pi}{4}$ 15) _____

$0 \le t < \frac{\pi}{2}$ and sin t is given. Use the Pythagorean identity $\sin^2 t + \cos^2 t = 1$ to find cos t.

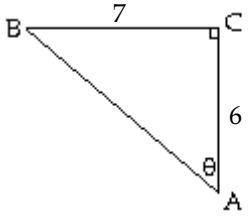
16) $\sin t = \frac{\sqrt{5}}{3}$ 16) _____

Use the Pythagorean Theorem to find the length of the missing side.Then find the indicated trigonometric function of the given angle. Give an exact answer with a rational denominator.

17) Find csc θ. 17) _____



18) Find tan θ. 18) _____



Solve the problem.

19) A surveyor is measuring the distance across a small lake. He has set up his transit on one side of the lake 90 feet from a piling that is directly across from a pier on the other side of the lake. From his transit, the angle between the piling and the pier is 35°. What is the distance between the piling and the pier to the nearest foot? 19) _____

20) A building 200 feet tall casts a 90 foot long shadow. If a person looks down from the top of the building, what is the measure of the angle between the end of the shadow and the vertical side of the building (to the nearest degree)? (Assume the person's eyes are level with the top of the building.) 20) _____

21) A straight trail with a uniform inclination of 16° leads from a lodge at an elevation of 500 feet to a mountain lake at an elevation of 8300 feet. What is the length of the trail (to the nearest foot)? 21) _____

1) $\frac{\sqrt{33}}{7}$

2) $\frac{\sqrt{39}}{5}$

3) $-\frac{\sqrt{65}}{4}$

4) $\frac{2}{9}$

5) $-\frac{2\sqrt{3}}{3}$

6) $\frac{\sqrt{3}}{2}$

7) $-\frac{\sqrt{2}}{2}$

8) $\sqrt{2}$

9) $-\sqrt{2}$

10) -1

11) $\frac{\sqrt{2}}{2}$

12) $-\sqrt{3}$

13) $-\frac{\sqrt{3}}{3}$

14) $\frac{2\sqrt{3}}{3}$

15) 1

16) $\frac{2}{3}$

17) $\frac{\sqrt{29}}{5}$

18) $\frac{7}{6}$

19) 63 feet

20) 24°

21) 28,298 feet