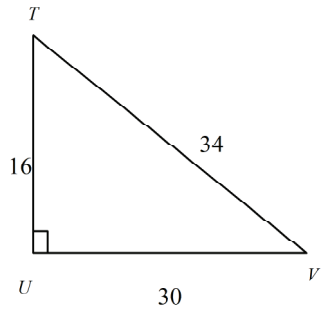
Name: _____ **Class:** _____ **Date:** _____ **ID: A**

Chapter 6 - Pre-Calculus - Mr. Lee

Study Guide

Multiple Choice
Identify the choice that best completes the statement or answers the question.

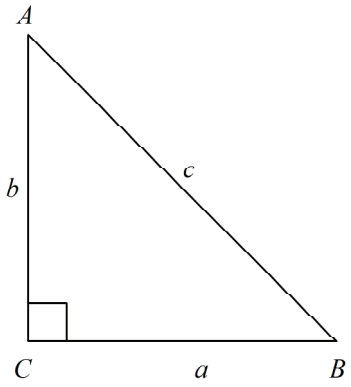
____ 1. Find the sine, cosine, and tangent of $\angle T$.



a. $\frac{17}{15}, \frac{15}{8}, \frac{17}{8}$
b. $\frac{8}{15}, \frac{8}{17}, \frac{15}{17}$
c. $\frac{15}{17}, \frac{8}{17}, \frac{15}{8}$
d. $\frac{15}{17}, \frac{8}{15}, \frac{8}{17}$

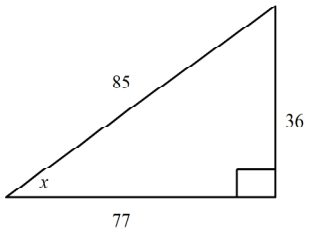
____ 2. Find the value of sec 37°.
a. 0.7536
b. 0.7986
c. 1.2521
d. 1.3270

____ 3. Given that $m\angle A = 28°$ and $c = 13$, find a in the right triangle below.



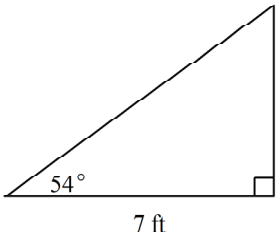
a. 3.52
b. 11.48
c. 6.1
d. 27.69

____ 4. Solve for x in the given triangle to the nearest degree.



a. 25°
b. 35°
c. 65°
d. 42°

____ 5. A ladder leans against a building forming an angle of 54° with the ground. The base of the ladder is 7 feet from the building. Use the cosine ratio to determine the length of the ladder.



a. 1.5 ft
b. 9.4 ft
c. 8.7 ft
d. 11.9 ft

____ 6. A tree casts a shadow of 27 meters when the angle of elevation of the sun is 26°. Find the height of the tree to the nearest meter.

a. 24 m
b. 15 m
c. 320 m
d. 13 m

____ 7. Convert 288° to radians.

a. $\frac{4}{5}\pi$
b. $\frac{16}{5}\pi$
c. $\frac{16}{15}\pi$
d. $\frac{8}{5}\pi$

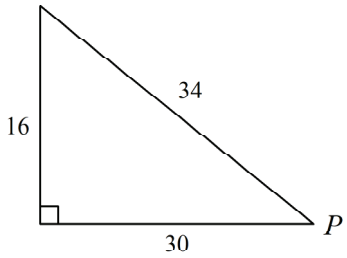
____ 8. Evaluate the expression $\cos\left(\frac{7}{4}\pi\right)$.

a. $\frac{\sqrt{2}}{2}$
b. $-\frac{\sqrt{2}}{2}$
c. 0
d. –1

____ 9. Evaluate the expression $\tan\left(-\frac{257\pi}{4}\right)$.

a. -1
c. 1
b. $-\frac{\sqrt{2}}{2}$
d. $\frac{\sqrt{2}}{2}$

____ 10. Find the trigonometric ratios for of csc *P*, sec *P*, cot *P*.



a. $\csc P = \frac{17}{8}$, $\sec P = \frac{17}{15}$, $\cot P = \frac{15}{8}$
c. 5
b. 3
d. 9

____ 11. Test the equations graphically to determine which one might be an identity.

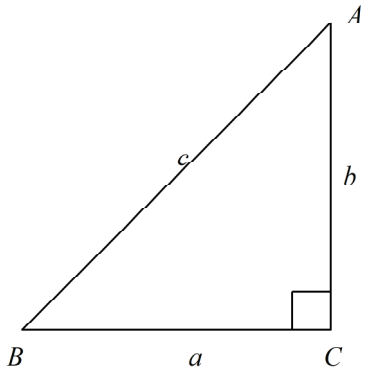
a. $\frac{\sin^3 x + \cos^3 x}{\sin x - \cos x} + \sin x \cdot \cos x = 1$
c. $\frac{\sin^3 x + \cos x}{\sin x - \cos x} + \sin x \cdot \cos x = 1$
b. $\frac{\sin x + \cos x}{\sin x - \cos x} - \sin x \cdot \cos x = 1$
d. $\frac{\sin^3 x - \cos^3 x}{\sin x - \cos x} - \sin x \cdot \cos x = 1$

____ 12. Find the exact value of $\cos\left(\frac{-5\pi}{12}\right)$.

a. $6 + \sqrt{2}$
c. $-2 - \sqrt{6}$
b. $\frac{2 + \sqrt{6}}{2}$
d. $\frac{\sqrt{6} - \sqrt{2}}{4}$

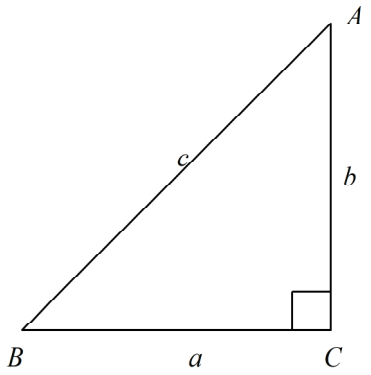
Short Answer

13. Using the right triangle below, find the sine and cosecant of angle A.



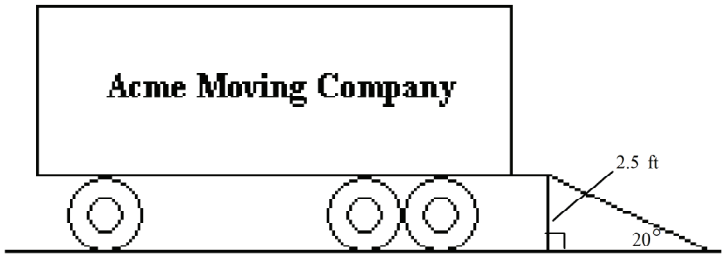
14. Find the value of tan 49° to the nearest ten thousandth.

15. Refer to the triangle below to solve a right triangle with $m\angle A = 35°$ and $a = 13$ meters.



16. In a right triangle, find $m\angle A$ to the nearest degree if $\angle C$ is a right angle and $b = 30$ and $c = 34$.

17. The tailgate of a truck is 2.5 feet above the ground. The incline of a ramp used for loading the truck is 20°, as shown. Find, to the *nearest tenth of a foot*, the length of the ramp.



18. Convert $\frac{7}{4}\pi$ to degrees.

19. Find the exact value of $\cos\frac{\pi}{6}+\sin\frac{\pi}{3}$. Do not use a calculator.

20. Express $\cos\theta \csc\theta$ in terms of $\tan\theta$.

21. Prove the identity.
$\cos x \cot x + \sin x = \csc x$

22. Prove the identity: $\dfrac{\sin 2x}{2\cos^2 x} = \tan x$