

Name: _____ Period: _____ Date: _____

PreCalculus CH 6 Practice Test

Answer the following questions.

1. With regards to trigonometry, angles can be viewed as a circular _____.

2. To convert from **radians** to **degrees**, we multiply by _____. To convert from **degrees** to **radians**, we multiply by _____.

3. Convert the following degree measures into radians.

a. 62° b. 30° c. 1290° d. -75° e. 7.5°

4. Convert the following radians into degrees.

a. $\frac{7\pi}{6}$ b. $\frac{11\pi}{3}$ c. -1.2 d. $-\frac{13\pi}{12}$ e. 3.4

5. Find a positive and a negative **coterminal** angle for the given angle measure.

a. 50° b. $\frac{3\pi}{4}$ c. $-\frac{\pi}{4}$ d. -45° e. $\frac{11\pi}{6}$

6. Find an angle between 0° and 360° that is coterminal with the given angle.

a. 733° b. 1110° c. -800°

7. Find an angle between 0 and 2π that is coterminal with the given angle.

a. $\frac{5\pi}{3}$ b. $-\frac{7\pi}{3}$ c. $\frac{51\pi}{2}$

8. Find the length of an arc that subtends a central angle of 45° in a circle of radius 10m.

9. A central angle θ in a circle of radius 5m is subtended by an arc of length 6m. Find the measure of θ in **degrees** and in **radians**.

10. Find the radius of the circle if an arc of length 6m on the circle subtends a central angle of $\frac{\pi}{6}$ rad.

11. Find the area of a sector with central angle 1 rad in a circle of radius 10m.

12. Find the area of a sector with central angle of 60° in a circle of radius 3m.

13. Sketch a triangle that has acute angle θ , and find the other five trig ratios of θ .

a. $\sin \theta = \frac{3}{5}$

b. $\cos \theta = \frac{9}{40}$

c. $\csc \theta = \frac{13}{12}$

14. Solve $\triangle ABC$, where $\angle A = 20^\circ$, $\angle C = 25^\circ$, and $c = 80.4$

15. Solve $\triangle ABC$ if $\angle A = 45.3^\circ$, $a = 167.1$, and $b = 185.2^\circ$

16. Solve $\triangle ABC$ if $\angle A = 42^\circ$, $a = 70$, and $b = 122^\circ$

17. Solve $\triangle ABC$ if $\angle A = 45^\circ$, $a = 7\sqrt{2}$, and $b = 7$

18. Solve $\triangle ABC$ if $a = 5$, $b = 8$, and $c = 12$

19. Solve $\triangle ABC$ if $\angle A = 46.5^\circ$, $b = 10.5$, and $c = 18$

20. Find the area of the triangle whose sides have lengths: $a = 9$, $b = 12$, $c = 15$

21. A ceiling fan with 16-in. blade rotates at 45rpm.

a. Find the angular speed of the fan in rad/min.

b. Find the linear speed of the blades in in/min.

22. A giant redwood tree casts a shadow 452ft long. Find the height of the tree if the angle of elevation of the sun is 12.3° . **(Hint: Draw the picture!)**

23. A 50-ft ladder leans against a building. If the base of the ladder is 7ft from the base of the building, what is the angle formed by the ladder and the building? **(Hint: Draw the picture!)**