Math 3 Name: _____

PRACTICE Test Unit 2 Radian Measures

Convert each degree measure into radians.

1) $-60°$

2) $-300°$

3) $345°$

4) $120°$

Convert each radian measure into degrees.

5) $-\frac{73\pi}{36}$

6) $-\frac{3\pi}{4}$

7) $\frac{5\pi}{3}$

8) $\frac{\pi}{6}$

Find the exact value of each trigonometric function.

9) $\csc\frac{\pi}{2}$

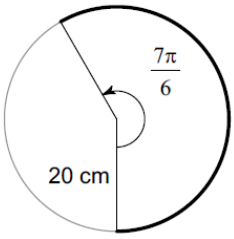
10) $\cos\frac{5\pi}{3}$

11) $\cot\frac{11\pi}{6}$

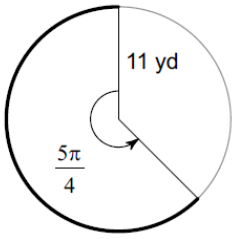
12) $\cos\frac{3\pi}{4}$

Find the length of each arc.

13)



14)

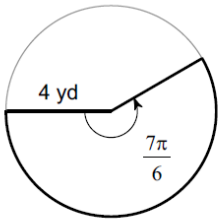


15) $r = 11$ cm, $\theta = \frac{\pi}{3}$

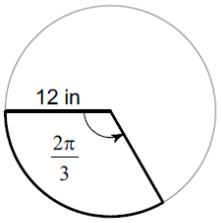
16) $r = 9$ m, $\theta = \frac{13\pi}{12}$

Find the area of each sector.

17)



18)



19) $r = 11$ cm, $\theta = \dfrac{7\pi}{4}$

20) $r = 13$ cm, $\theta = \dfrac{\pi}{4}$

#21 In your own words, what is a radian? (2 pt)

#22 Find the area of a sector with a central angle of $\dfrac{2\pi}{3}$ radians and a diameter of 6 units.

Answer = _____ (2 pt)

#23 A railroad track is laid along the arc of a circle of radius 1800 ft. The circular part of the track subtends a central angle of 40°. How long (in seconds) will it take a point on the front of a train traveling 30 mph to go around this portion of the track. (Hint: there are 5280 ft in 1 mile.)

Answer = _____ (2 pt)

#24 The shoulder joint can rotate at about 25 radians per sec. If a golfer's arm is straight and the distance from the shoulder to the club head is 5 ft, estimate the linear speed of the club head from shoulder rotation.

Answer = _____ (2 pt)

Math 3 Name: KEY

PRACTICE Test Unit 2 Radian Measures

Convert each degree measure into radians.

1) -60° $-\frac{\pi}{3}$

2) -300° $-\frac{5\pi}{3}$

3) 345° $\frac{23\pi}{12}$

4) 120° $\frac{2\pi}{3}$

Convert each radian measure into degrees.

5) $-\frac{73\pi}{36}$

-365°

6) $-\frac{3\pi}{4}$

-135°

7) $\frac{5\pi}{3}$

300°

8) $\frac{\pi}{6}$

30°

Find the exact value of each trigonometric function.

9) $\csc\frac{\pi}{2}$

1

10) $\cos\frac{5\pi}{3}$ $\frac{1}{2}$

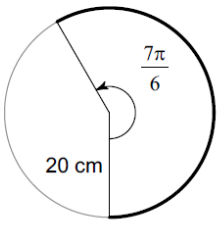
11) $\cot\frac{11\pi}{6}$

$-\sqrt{3}$

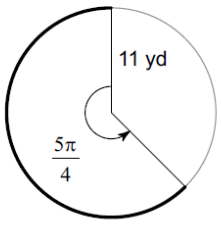
12) $\cos\frac{3\pi}{4}$ $-\frac{\sqrt{2}}{2}$

Find the length of each arc.

13) $\frac{70\pi}{3}$ cm



14) $\frac{55\pi}{4}$ yd

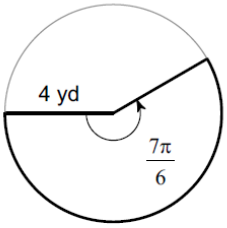


15) $r = 11$ cm, $\theta = \frac{\pi}{3}$ $\frac{11\pi}{3}$ cm

16) $r = 9$ m, $\theta = \frac{13\pi}{12}$ $\frac{39\pi}{4}$ m

Find the area of each sector.

17) $\frac{28\pi}{3}$ yd²



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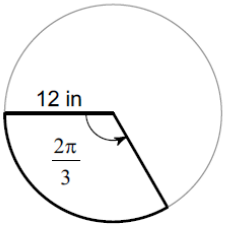

48π in²

19) $r = 11$ cm, $\theta = \frac{7\pi}{4}$ $\frac{847\pi}{8}$ cm²

20) $r = 13$ cm, $\theta = \frac{\pi}{4}$ $\frac{169\pi}{8}$ cm²

#21 In your own words, what is a radian? (2 pt)

answers may vary

The angle made by an arc of radius length is 1 radian.

#22 Find the area of a sector with a central angle of $\frac{2\pi}{3}$ radians and a diameter of 6 units.

Answer = about 9.4 *units*² (2 pt)

#23 A railroad track is laid along the arc of a circle of radius 1800 ft. The circular part of the track subtends a central angle of 40°. How long (in seconds) will it take a point on the front of a train traveling 30 mph to go around this portion of the track. (Hint: there are 5280 ft in 1 mile.)

Answer = about 29 seconds (2 pt)

#24 The shoulder joint can rotate at about 25 radians per sec. If a golfer's arm is straight and the distance from the shoulder to the club head is 5 ft, estimate the linear speed of the club head from shoulder rotation.

Answer = 125 ft per second (2 pt)