Pre-Calculus A   Name : _____
Section 4.1 Quiz Review   Date : _____

Convert the angle to radians. Leave your answer in terms of π (Give an EXACT answer).

1. -15°   2. 36°

Convert the radian measure to degrees. Round to the nearest hundredth (two places) if necessary.

3. $\frac{9\pi}{8}$ 4. 5 radians

Sketch each angle in standard position.

5. -135°   6. $\frac{25\pi}{18}$

Find both the complement and supplement **in radians** (if possible) for each angle measure given. If it is not possible, explain why.

7. $\frac{2\pi}{5}$

8. $\frac{2\pi}{45}$

9. $-\frac{3\pi}{7}$

10. $\frac{2\pi}{3}$

Find a positive and a negative coterminal angle **in radians** for each angle measure given.

11. $\theta = -\dfrac{\pi}{6}$

12. $\theta = \dfrac{2\pi}{3}$

13. $\theta = -\dfrac{5\pi}{4}$

Convert the angle to decimal degrees and round to the nearest hundredth.

14. $56° \, 54'8''$

15. $31° \, 8'17''$

Convert the angle to degrees, minutes, and seconds (DMS).

16. $120.98°$

17. $209.64°$

Convert the degree measure to **radians**. Round to four decimal places.

18. -25° 36'   19. 13° 4' 17"

20. Find the length of an arc intercepted by a central angle $\frac{\pi}{35}$ in a circle of radius 17.05 feet. Round your answer to two decimal places.

21. A circle has a radius of 5 feet. Find the length of the arc intercepted by a central angle of 120°.

22. A man was jogging on a circular track with radius 89 meters. If the man was jogging at a speed of 25 meters per minute, what was the central angle generated by the man after 5 minutes in radians **and** in degrees?

23. Pittsburgh, Pennsylania and Miami, Florida, lie approximately on the same longitude. Pittsburgh has a latitude of 40.325° N and Miami has a latitude of 25.025° N. Find the distance between these two cities. (The radius of the earth is 3960 miles).

24. Dallas, Texas and Omaha, Nebraska lie approximately on the same longitude. Dallas has a latitude of $32°47'39"$ N and Omaha has a latitude of $41°15'50"$ N. Find the distance between these two cities. Assume the earth has a radius of 4,000 miles.

25. Assuming that Earth is a sphere of radius 4,000 miles, what is the difference in the latitudes of Buffalo, New York and Durham, North Carolina, where Buffalo is about 688 miles due north of Durham?

Answer Key :

1) $-\dfrac{\pi}{12}$

2) $\dfrac{\pi}{5}$

3) $202.5°$

4) $286.48°$

5) & 6) Check the solutions on my website ☺

7) Complement: $\dfrac{\pi}{10}$ Supplement: $\dfrac{3\pi}{5}$

8) Complement: $\dfrac{41\pi}{90}$ Supplement: $\dfrac{43\pi}{45}$

9) No Complement or Supplement

10) No Complement, Supplement: $\dfrac{\pi}{3}$

11) $\dfrac{11\pi}{6}, -\dfrac{13\pi}{6}$

12) $\dfrac{8\pi}{3}, -\dfrac{4\pi}{3}$

13) $\dfrac{3\pi}{4}, -\dfrac{13\pi}{4}$

14) 56.9022°

15) 31.138°

16) 120° 58' 48"

17) 209° 38' 24"

18) -0.4468 rad

19) 0.2281 rad

20) 1.53 ft

21) 10.5 ft

22) 1.4 rad, 80.2°

23) 1057.32 miles

24) 591.2 miles

25) 9° 51' 17"