HonorsPre-Calc/Trig Unit 1 Assessment

Angles and Their Measure

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Block: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**NO CALCULATORS ARE TO BE USED IN THIS SECTION**

**Level 2/Basic**

1. Change 240° to radian measure in terms of . 1.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. Change 5/3 radians to degree measure 2.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3. Give one positive angle and one negative angle that is coterminal to 70°. 3.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

4. Give one positive angle and one negative angle that is coterminal to 4/3.

4.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

5. Find the complement of 5/12. 5.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

6. Find the supplement of /6 6.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

7. If an angle of measure 11/6 is drawn in standard position, in which

quadrant does the terminal side lie? 7.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

8. If an angle of measure -5/4 is drawn in standard position, in which

quadrant does the terminal side lie? 8.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

9. Sketch an angle in standard position with the given measure.

a) 4/3 b) -3/2

10. Change 48° to radian measure to the nearest thousandth. 10.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**NO CALCULATORS ARE TO BE USED IN THIS SECTION**

**Level 2/Basic**

1. The measure of a central angle in a circle of radius 18 cm

is 2/3. Find the measure of its intercepted arc, in terms of . 1.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. The measure of a central angle in a circle of radius 24 cm 2.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

is 60°. Find the measure of its intercepted arc in terms of π.

3. Find the area of the sector in a circle of 10 cm, given a central

angle of /5. 3.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

4. If the area of the sector in a circle is 6 when the central angle /3,

Find the radius of the circle. 4.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

5. Find the angular velocity of a wheel that rotates 9 and ½ rotations in

5 seconds. 5.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

6. Find the linear velocity, in inches per second, of a point on the edge of a

wheel of radius 4 inches that is turning a an angular velocity of /6 radians

per second. 6.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Level 3/Proficient**

1. A student walks 3/8 of the way around a circular building of radius

200 feet. How far does he walk, in terms of ? 1.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. A circular garden has a radius of 12 feet. It is divided into parts to plant

various vegetables. The portion in which tomatoes are planted, has a central

angle of 5/6. What is the area of the plot on which tomatoes are planted?

2.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3. If an angle of measure 23/7 is drawn in standard position, in which

quadrant does the terminal side lie? 3.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

4. If an angle of measure -47/9 is drawn in standard position, in which

quadrant does the terminal side lie? 4.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

5. Sketch an angle in standard position with the given measure.

a) 22/5 b) -35/11

6. A wheel of radius 11 centimeters is rotating at an angular velocity

of 7 radians per second. To the nearest hundredth of a centimeter per

second, at what linear speed is a point on the edge of the wheel moving? 6.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

7. A wheel of radius 8 centimeters is rotating so that a point on the edge

of the wheel is moving with a linear velocity of 3 centimeters per second.

To the nearest hundredth of a radian per second, at what angular speed

is the wheel rotating? 7.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Level 4/Advanced**

1. Write an expression for the radian measure of all angles that are

coterminal with an angle of measure 72°. 1.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. A wheel of radius 12 inches and a wheel of radius 7 inches are in contact so that the linear velocity of the two wheels is the same. If the angular velocity of the 12-inch wheel is 14 radians per second, to the nearest tenth of a radian per second, what is the angular velocity of the 7-inch wheel?

2.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3. The windshield wiper on a car rotates 135°. If the radius of the inner circle is 8 inches and the length of the wiper blade is 22 inches, to the nearest tenth, how many square inches of the windshield is being cleared by the wiper? (See the diagram.)



3.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

4. At what angular velocity, in radians per second, should the wheels on a bike with 26-inch diameter wheels be turning so that the bike is traveling at 20 miles per hour? (to the nearest hundredth)

(5280 feet =1 mile, 60 minutes=1 hour, 60 seconds=1 minute)

4.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_