

1. What is a radian?

2. How does the circumference formula, $C = 2\pi r$, help us to know how many radians there are in a circle?

3. Max thinks that bigger circles will be able to fit more radii along their circumference than smaller circles. Is he correct? Explain.

4. Convert each angle measure to radians. Provide your answers to 1 decimal place.

a) 100°

b) 200°

c) 30°

d) 70°

_____ radians (1 dec.)

_____ radians (1 dec.)

_____ radians (1 dec.)

_____ radians (1 dec.)

5. Mike mentions to Jeff that he always gets confused about which ratio he should use when converting from degrees to radians, is it $\frac{\pi}{180^\circ}$ or $\frac{180^\circ}{\pi}$? Which one is the correct ratio? Explain a way to make sense of which one to use.

6. Convert the degree measures into radians. Leave answers as exact values in most reduced form.

a) 90°

b) 30°

c) 300°

d) 270°

_____ radians

_____ radians

_____ radians

_____ radians

7. Convert the following radian measures into degrees.

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

b) $\frac{9\pi}{20}$

c) $\frac{4\pi}{15}$

d) $\frac{7\pi}{6}$

e) $\frac{6\pi}{5}$

f) $\frac{11\pi}{12}$

g) $\frac{3\pi}{10}$

h) $\frac{4\pi}{2}$

8. You are told that 15° is $\frac{\pi}{12}$ radians. How could you use that to determine what the radian value is for 45° ?

9. Explain how knowing that 45° is $\frac{\pi}{4}$ radians can help you find 135° , 270° , and 315° . Do the conversions as a part of the explanation.

10. A value of $\frac{11\pi}{4}$ radians was written on the homework assignment and Henry looked at it and said "Wow that angle is even bigger than 360° ." How could Henry identify that so quickly without calculation of the actual value?