

1.
 - a). What is the relationship between degrees and radians?
 - b). What is the conversion factor from degrees to radians?
 - c). What is the conversion factor from radians to degrees?
2.
 - a). What is the formula for arc length of a circle?
 - b). What is the formula for the area of a sector of a circle?
 - c). What do the variables in these formulas represent?
3.
 - a). What is the formula that relates linear speed to angular speed?
 - b). How many miles per foot?
 - c). How many seconds per hour?
 - d). Convert 100 feet per second to miles per hour.

a). Describe the effect of the constants a , b , c and d in $a \cdot \cos(bx + c) + d$.

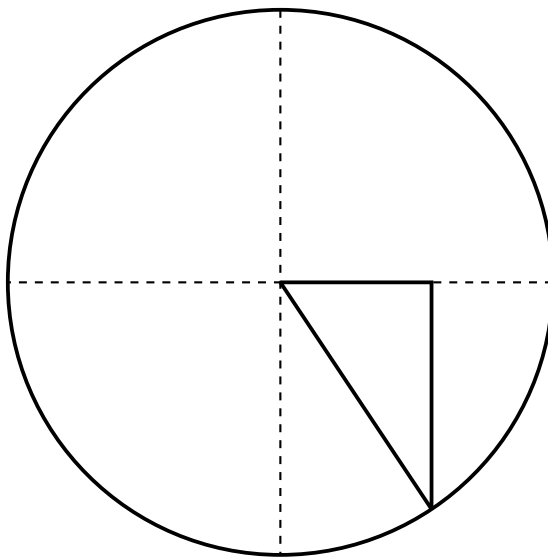
b). Choose appropriate labels for the axes (e.g. $0, \pi/4, \pi/2, 3\pi, 4$) and graph $-\cos\left(\frac{3\pi}{4}x + \frac{\pi}{2}\right) + 1$.



5. a). Name the three sides of a right triangle.

b). In terms of the sides, what are the ratios of the six trigonometric functions?

c). If the circle below passes through the point $(4, -6)$, label every known point, side length and angle.



d). Calculate the six trigonometric functions associated with the point $(4, -6)$.

6. a). “Compute” $\cos(\arccos(1))$, $\arccos(\cos(1))$, $\arcsin(\sin(1))$, $\sin(\arcsin(1))$, $\tan(\arctan(1))$ and $\text{arccot}(\cot(1))$.

b). Why can’t you “compute” $\text{arcsec}(0)$ or $\arcsin(42)$?

7. a). List the three forms of the Pythagorean identity.

b). Show that they are all the same equality.

8. a). Use the Pythagorean identity to rewrite $\cot^2(\theta) = \csc(\theta) + 1$ in terms of a single trig function.

b). Substitute a variable for your trig function (e.g. $x = \sin(\theta)$) and solve the quadratic.

c). Substitute the trig function back into your solutions (e.g. $x = \frac{1}{2} \iff \sin(\theta) = \frac{1}{2}$), and solve for θ .