

TEST PREP UNIT 2 Math 1316 -Plane Trigonometry

Unit 2: Section 3.1-3.3

Formulas:

Arc Length Formulas:

1.

2.

Liner Speed Formulas:

1.

2.

Why?

Angular Speed Formulas:

1.

2.

Define Aspects of COS and SIN functions:

$$y=C+A\sin/\cos(B(x-D))$$

Reciprocals of Trig Functions:

$\cos(x)$

$\sin(x)$

$\tan(x)$

Degrees to Radian

Radians to Degree

Practice Problems: Converting Degrees to Radians and Radians to Degrees

a) 150°

b) $7\pi/6$

c) 225°

d) $5\pi/3$

e) A camera mounted on a rotating platform turns through an angle of -210° . Express this angle in radians.

Practice Problems: Arc lengths, Areas of a sector, Angular/Linear Speed

1. A bicycle wheel has a radius of 0.35 meters. The wheel rotates through an angle of 220°
2. A circular track has a radius of 12 meters. A runner travels along the track through a central angle of $5\pi/6$ radians. What is the distance that the runner travels?

3. A pizza has a radius of 14 inches. You cut a slice with a central angle of 72° .
4. A ceiling fan spins at 2.75 revolutions per second.
- a) Convert this speed to radians per second.
 - b) Convert this speed to radians per minute.
5. A circular saw blade rotates at 240π radians per hour.
- a) Convert this angular speed to revolutions per hour.
 - b) Convert the speed to revolutions per minute.
6. A rope is wrapped around a cylindrical drum with a radius of 0.75 ft. The drum rotates at $(7\pi/2)$ radians per minute.
- a) Convert the angular speed to revolutions per minute.
 - b) Find the linear speed of the rope in ft/min.
 - c) How much rope is wrapped in 30 seconds?

Instructions: Give the exact value of each trig function. No decimals. Use the unit circle.

a) $\sin(210^\circ) =$

b) $\cos(5\pi/4) =$

c) $\tan(11\pi/6) =$

d) $\csc(330^\circ) =$

e) $\sec(4\pi/3) =$

f) $\cot(7\pi/4) =$

Instructions: Find all values of θ , rounded to two decimals, in the interval $[0, \pi)$

a) $\sin(\theta) = 0.60$

b) $\cos(\theta) = -0.44$

c) $\tan(\theta) = 2.10$

Identify the Characteristics of Each Function

(a)

$$y = 2 + 3\sin(x)$$

- Amplitude: _____
- Period: _____
- Vertical Shift: _____
- Phase Shift: _____

(b)

$$y = -1 + 4\cos(2x - \pi)$$

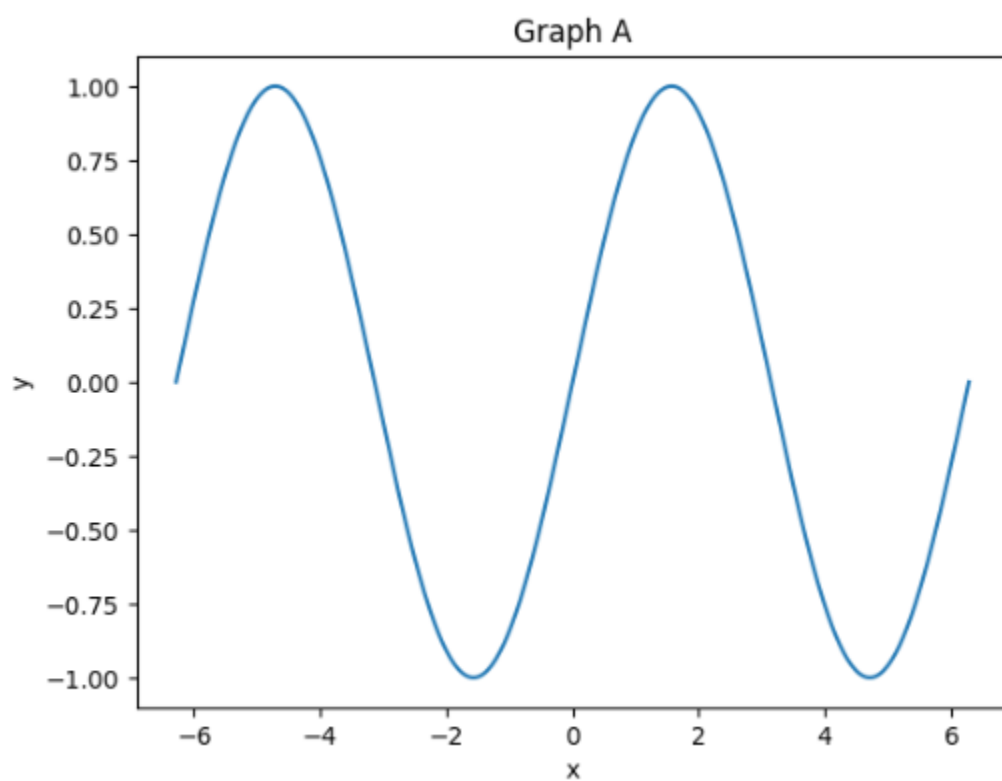
- Amplitude: _____
- Period: _____
- Vertical Shift: _____
- Phase Shift: _____

(c)

$$y = 1 - 2\sin(3(x - \pi/6))$$

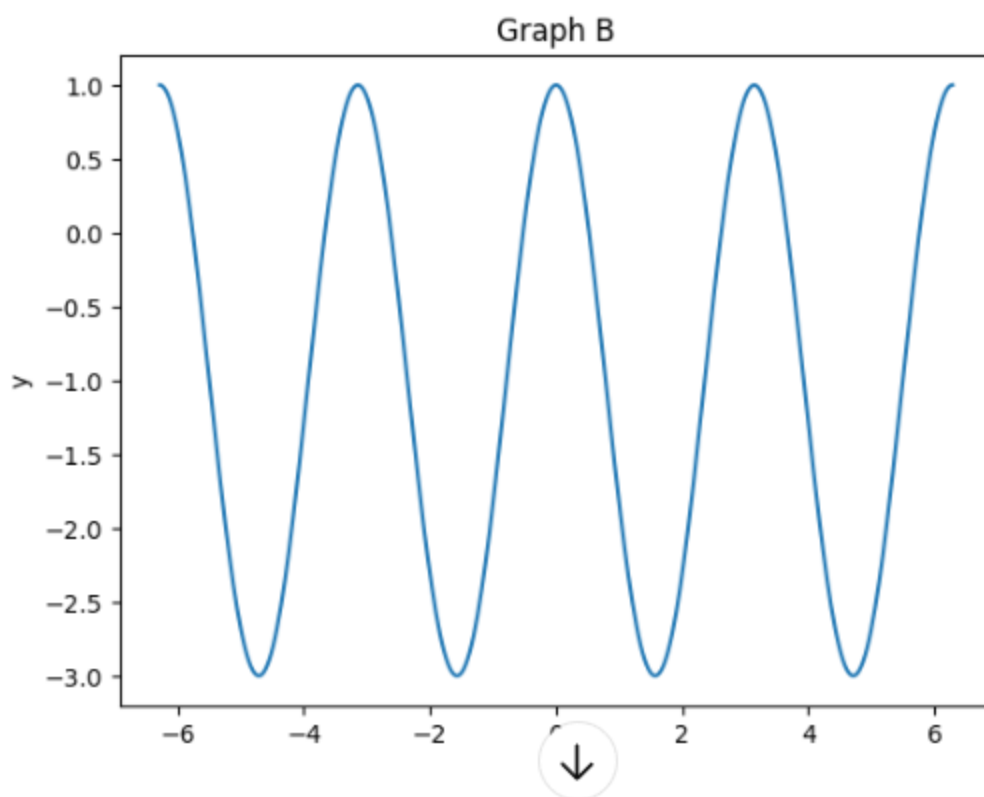
- Amplitude: _____
- Period: _____
- Vertical Shift: _____
- Phase Shift: _____

Identify the Equation from the Graph



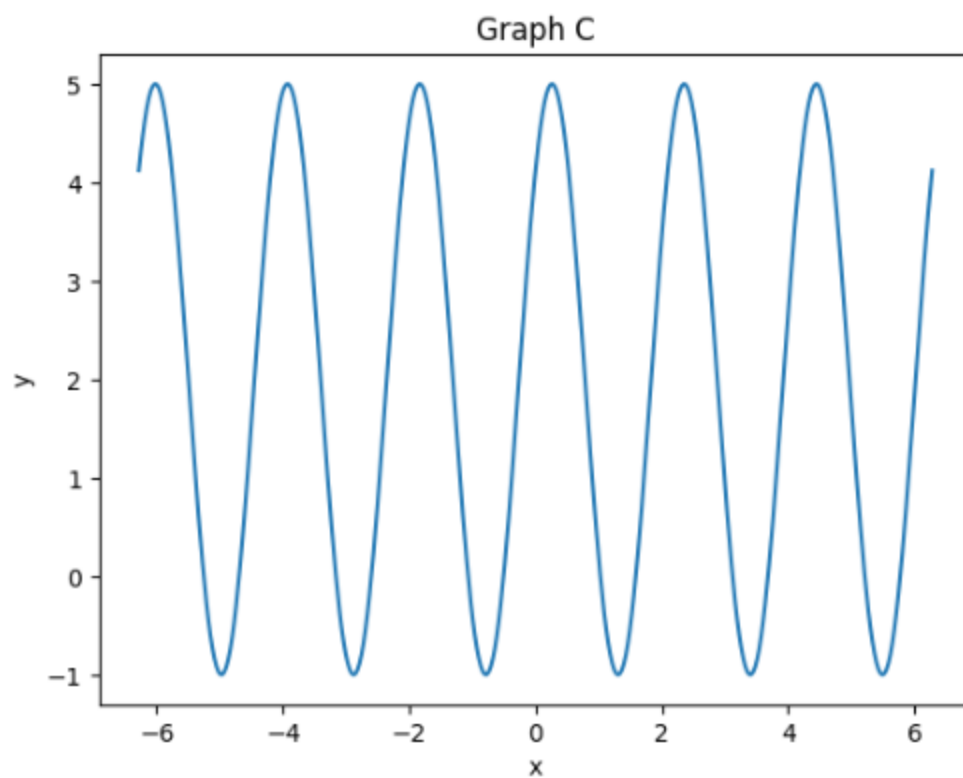
- Amplitude: _____
- Period: _____
- Vertical Shift: _____
- Phase Shift: _____

Equation:



- Amplitude: _____
- Period: _____
- Vertical Shift: _____
- Phase Shift: _____

Equation:



- Amplitude: _____
- Period: _____
- Vertical Shift: _____
- Phase Shift: _____

Equation: