PRINTABLE VERSION

Quiz 8

You scored 100 out of 100

Question 1

$\theta + n \cdot 360$; n is an integer

Your answer is CORRECT.

Find three angles, two positive and one negative, that are coterminal with the given angle: 300°

a) -60°, 480°, 1020°

b) -60°, 660°, 1020°

c) -480°, 480°, 660°

d) -120°, 480°, 660°

e) -120°, 660°, 1020°

$300 + (1)\,360 = 660°$

$300 + (-1)\,360 = -60°$

$300 + (2)\,360 = 1020°$

Question 2

Your answer is CORRECT.

Name the quadrant in which the given conditions are satisfied: $\tan(\theta) < 0$, $\sec(\theta) < 0$

a) IV

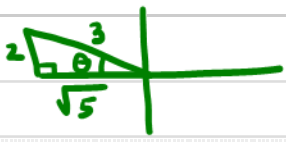
b) II

c) III

d) I

Quad II

Question 3



$\sin\theta = \frac{2}{3}$

$\cos\theta = \frac{-\sqrt{5}}{3}$

$\tan\theta = \frac{-2}{\sqrt{5}} = \frac{-2\sqrt{5}}{5}$

Your answer is CORRECT.

Let $P(x, y)$ denote the point where the terminal side of an angle θ meets the unit circle. If P is in Quadrant II and $y = 2/3$, evaluate the six trigonometric functions of θ.

$\sin\theta = \frac{2}{3}$

$2^2 + x^2 = 3^2$

$x = \sqrt{5}$

$\csc\theta = \frac{3}{2}$

$\sec\theta = \frac{-3}{\sqrt{5}} = \frac{-3\sqrt{5}}{5}$

$\cot\theta = \frac{-\sqrt{5}}{2}$

a) $\left\{\cos(\theta) = -\frac{1}{3}\sqrt{5}, \cot(\theta) = -\frac{1}{2}\sqrt{5}, \csc(\theta) = \frac{3}{2}, \sec(\theta) = -\frac{3}{5}\sqrt{5}, \sin(\theta) = \frac{2}{3}, \tan(\theta) = -\frac{2}{5}\sqrt{5}\right\}$

b) $\left\{\cos(\theta) = \frac{2}{3}, \cot(\theta) = -\frac{1}{2}\sqrt{5}, \csc(\theta) = \frac{3}{2}, \sec(\theta) = -\frac{3}{5}\sqrt{5}, \sin(\theta) = -\frac{1}{3}\sqrt{5}, \tan(\theta) = -\frac{2}{5}\sqrt{5}\right\}$

c) $\left\{\cos(\theta) = \frac{1}{3}\sqrt{5}, \cot(\theta) = \frac{3}{2}, \csc(\theta) = -\frac{1}{2}\sqrt{5}, \sec(\theta) = -\frac{2}{5}\sqrt{5}, \sin(\theta) = -\frac{2}{3}, \tan(\theta) = -\frac{3}{5}\sqrt{5}\right\}$

d) $\left\{\cos(\theta) = -\frac{1}{3}\sqrt{5}, \cot(\theta) = \frac{1}{2}\sqrt{5}, \csc(\theta) = -\frac{3}{2}, \sec(\theta) = \frac{3}{5}\sqrt{5}, \sin(\theta) = -\frac{2}{3}, \tan(\theta) = \frac{2}{5}\sqrt{5}\right\}$

e) $\left\{\cos(\theta) = \frac{2}{3}, \cot(\theta) = -\frac{2}{5}\sqrt{5}, \csc(\theta) = -\frac{3}{5}\sqrt{5}, \sec(\theta) = \frac{3}{2}, \sin(\theta) = -\frac{1}{3}\sqrt{5}, \tan(\theta) = -\frac{1}{2}\sqrt{5}\right\}$

Question 4

Your answer is CORRECT.

Rewrite the following expression in terms of its reference angle, deciding on the appropriate sign (positive or negative): sin(115°)

a) sin(25°)

b) sin(65°)

c) sin(75°)

d) -sin(25°)

e) -sin(65°)

180 − 115 = 65

sin(115°) = sin(65°)

Question 5

Your answer is CORRECT.

Rewrite each expression in terms of its reference angle, deciding on the appropriate sign (positive or negative): $\tan(2\pi/3)$

a) $-\tan(5\pi/12)$

b) $-\tan(\pi/3)$

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

d) $-\tan(\pi/6)$

e) $\tan(\pi/3)$

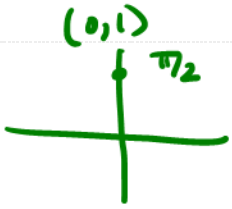
ref θ = π/3

$\tan\left(\frac{2\pi}{3}\right) = -\tan\left(\frac{\pi}{3}\right)$

Question 6

Your answer is CORRECT.

For the quadrantal angle $\pi/2$, give the coordinates of the point where the terminal side of the angle intersects the unit circle. Then give the sine and cosine of the angle.



$\sin(\pi/2) = 1$

$\cos(\pi/2) = 0$

a) (1, 0), $\sin(\pi/2) = 0$, $\cos(\pi/2) = 0$

b) (0, 1), $\sin(\pi/2) = 1$, $\cos(\pi/2) = 0$

c) (1, 0), $\sin(\pi/2) = 1$, $\cos(\pi/2) = 0$

d) (0, -1), $\sin(\pi/2) = 0$, $\cos(\pi/2) = 0$

e) (0, 1), $\sin(\pi/2) = 0$, $\cos(\pi/2) = 1$

Question 7

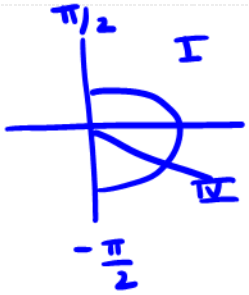
Your answer is CORRECT.

Find the exact value of the following expression. Do not use a calculator. If undefined, state, "Undefined."

$$\arcsin\left(-\frac{1}{2}\sqrt{3}\right)$$

$\sin\alpha = -\frac{\sqrt{3}}{2}$

$\alpha = -\pi/3$



a) $\pi/3$

b) $-\pi/3$

c) Undefined

d) $-5\pi/6$

e) $5\pi/6$

Question 8

Your answer is CORRECT.

Find the exact value of the following expression. Do not use a calculator. If undefined, state, "Undefined."

$$\cos^{(-1)}\left(-\frac{1}{2}\sqrt{3}\right)$$

$\cos\theta = -\frac{\sqrt{3}}{2}$

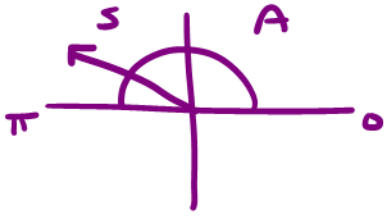
a) $-5\pi/6$

b) Undefined

c) $5\pi/6$

d) $-\pi/3$

e) $\pi/3$



$\theta = \frac{5\pi}{6}$

Question 9

Your answer is CORRECT.

Find the exact value of the following expression. Do not use a calculator. If undefined, state, "Undefined."

$$\arctan\left(\sqrt{3}\right)$$

$\tan(\pi/3) = \frac{\sin(\pi/3)}{\cos(\pi/3)} = \frac{\sqrt{3}/2}{1/2}$

$= \frac{\sqrt{3}}{2} \cdot \frac{2}{1} = \sqrt{3}$

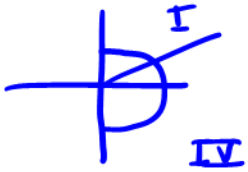
a) Undefined

b) $-\pi/6$

c) $\pi/6$

d) $\pi/3$

e) $-\pi/3$



$\tan\alpha = \sqrt{3}$

$\alpha = \pi/3$

Question 10

Your answer is CORRECT.

Find the exact value of the following expression. Do not use a calculator. If undefined, state, "Undefined."

$$\cos^{(-1)}(-1)$$

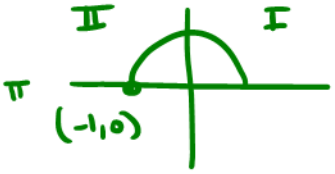
$\cos\theta = -1$

$\theta = \pi$

a) π

b) $-\pi/2$

c) Undefined



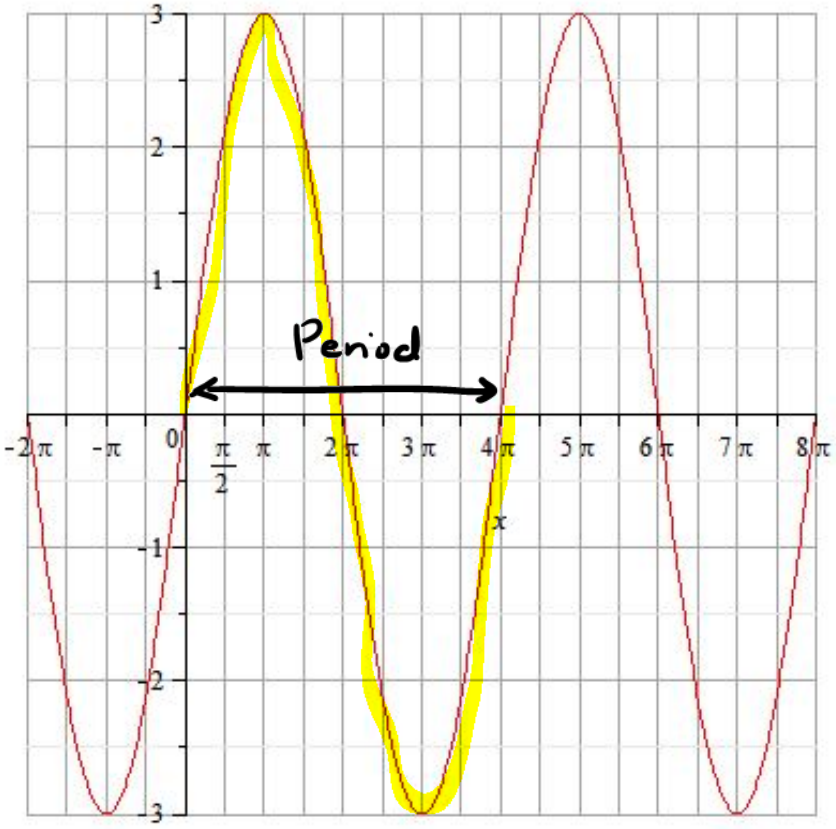
d) $3\pi/2$

e) 2π

Question 11

Your answer is CORRECT.

Find the period for the following function:



Period = 4π

a) 3

b) 2π

c) 4π

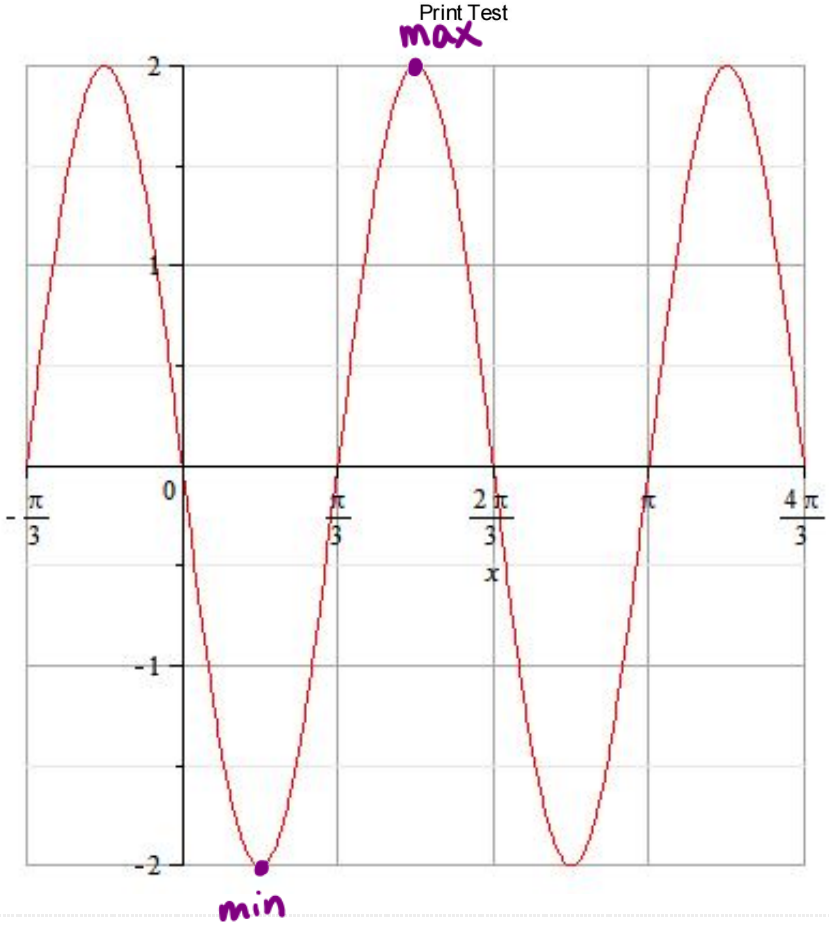
d) 2

e) $1/2$

Question 12

Your answer is CORRECT.

Find the amplitude for the following function:



a) $\pi/3$

b) $2\pi/3$

c) 4

d) 2

e) 1

$A = \frac{2-(-2)}{2} = \frac{4}{2} = 2$

Question 13

Your answer is CORRECT.

Find the period for the following function:

$$f(x) = \frac{5}{9}\sin\left(\frac{1}{3}x\right)$$

a) $2\pi/3$

b) 6π

c) 3π

$\text{Period} = \frac{2\pi}{B} = \frac{2\pi}{(1/3)} = \frac{2\pi}{1}\cdot\frac{3}{1} = 6\pi$

d) $18\pi/5$

e) $5\pi/9$

Question 14

Your answer is CORRECT.

Find the amplitude for the following function:

$$f(x) = \frac{2}{3}\cos\left(\frac{1}{4}x\right)$$

a) $2/3$

$A = 2/3$

b) 8π

c) $1/3$

d) $4/3$

e) $\pi/2$

Question 15

Your answer is CORRECT.

Find the period for the following function:

$$f(x) = 5\cos\left(\frac{1}{3}\pi x - \pi\right) - 2$$

a) $2\pi/3$

$\text{Period} = \frac{2\pi}{B} = \frac{2\pi}{(\pi/3)} = \frac{2\pi}{1} \cdot \frac{3}{\pi} = 6$

b) 3

c) $\pi/3$

d) 6π

e) 6

Question 16

Your answer is CORRECT.

Find the amplitude for the following function:

$$f(x) = 7\cos\left(\frac{1}{4}\pi x - \pi\right) + 2$$

A

a) 7

Amplitude = |7| = 7

b) 8

c) 9

d) $^7/_2$

e) 14

Question 17

Your answer is CORRECT.

Find the phase shift for the following function:

$$f(x) = 6\cos\left(\frac{1}{5}\pi x - \pi\right) - 4$$

a) π left

b) 5 left

c) 4 right

d) 5 right

e) π right

$$\frac{C}{B} = \frac{\pi}{(\pi/5)} = \frac{\pi}{1}\cdot\frac{5}{\pi} = 5$$

to the right

Question 18

Your answer is CORRECT.

Find the vertical shift for the following function:

$$f(x) = 6\sin\left(\frac{1}{4}\pi x - \pi\right) - 3$$

3 down

a) 4 up

b) 3 down

c) 3 up

d) 4 down

e) 6 up

Question 19

Your answer is CORRECT.

Give an equation of the form $f(x) = A\cos(B\,x - C) + D$ which could be used to represent the given graph. (Note: C or D may be zero.)

$A = \frac{4-(-2)}{2} = \frac{6}{2}$

$A = 3$

$\frac{2\pi}{3} = \frac{2\pi}{B}$

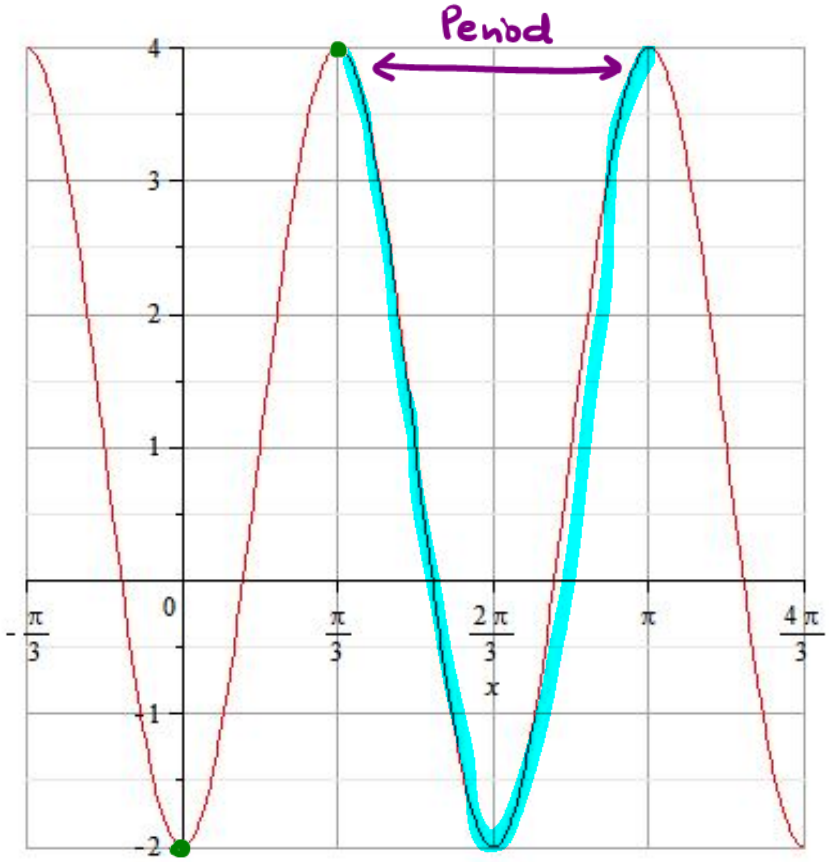
$2\pi B = 6\pi$

$B = 3$

$\frac{\pi}{3} = \frac{C}{3}$

$3C = 3\pi$

$C = \pi$



$A = \frac{\text{max} - \text{min}}{2}$

$D = \frac{\text{max} + \text{min}}{2}$

$\text{Period} = \frac{2\pi}{B}$

$\text{Phase Shift} = \frac{C}{B}$

$D = \frac{4 + -2}{2} = \frac{2}{2} = 1$

$y = 3\cos(3x - \pi) + 1$

a) $f(x) = 3\cos(3x - \pi)$

b) $f(x) = 6\cos(3x - \pi) - 1$

c) $f(x) = 6\cos(3x - \pi) + 1$

d) $f(x) = 3\cos(3x - \pi) - 1$

e) $f(x) = 3\cos(3x - \pi) + 1$

Question 20

Your answer is CORRECT.

Give an equation of the form $f(x) = A\sin(B\,x - C) + D$ which could be used to represent the given graph. (Note: C or D may be zero.)

$A = \frac{\text{max} - \text{min}}{2}$

$A = \frac{3 - (-1)}{2} = 2$

$\text{Period} = \frac{2\pi}{B}$

$\frac{\pi}{1} = \frac{2\pi}{B}$

$\text{Phase Shift} = \frac{C}{B}$

$\pi B = 2\pi$

$B = 2$

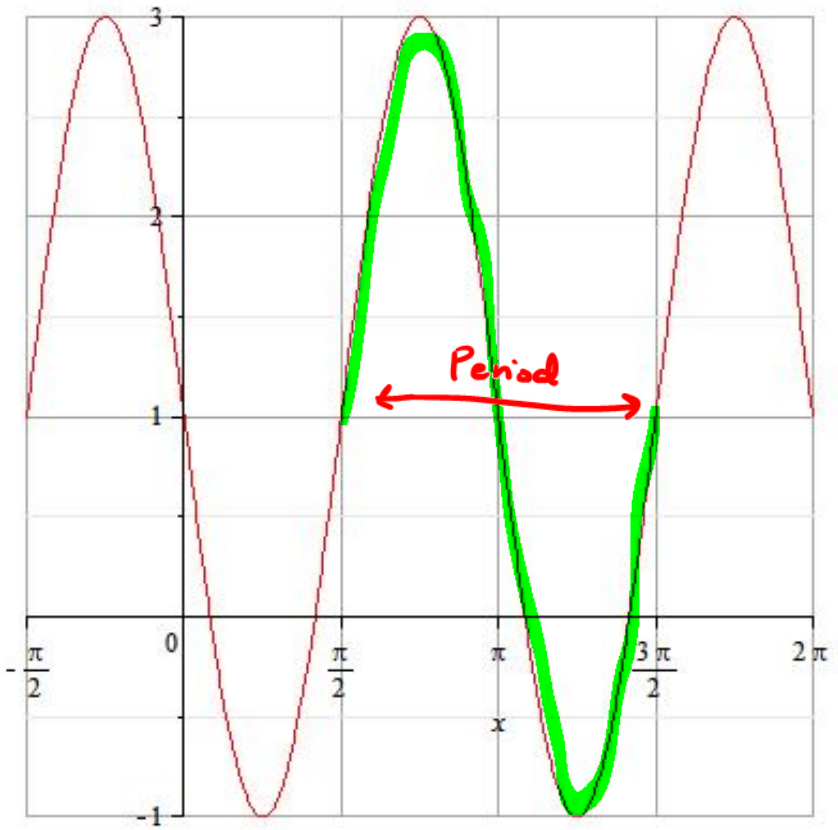
$D = \frac{\text{max} + \text{min}}{2}$

$\frac{\pi}{2} = \frac{C}{2}$

$2C = 2\pi$

$C = \pi$

$D = \frac{3 + -1}{2} = 1$



a) $f(x) = 2\sin(2x - \pi)$

b) $f(x) = 2\sin(2x - \pi) - 1$

c) $f(x) = 2\sin(2x - \pi) + 1$

d) $f(x) = 4\sin(2x - \pi) - 1$

e) $f(x) = 4\sin(2x - \pi) + 1$

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