Give the exact value of $\sin\left(\frac{7\pi}{2}\right)$?

a. 0 b. 1 c. 7 d. -1

e. none of these

Determine the quadrant in which the terminal side of an angle of $-\frac{6\pi}{5}$ lies.

a. I b. II c. III d. IV

e. terminal side lies on one of the axes

Determine the quadrant in which θ lies: $\sin\theta < 0$ and $\cos\theta > 0$

a. I b. II c. III d. IV e. none of these

Given $\cos\theta = -\frac{\sqrt{3}}{2}$ and $\csc\theta > 0$, find $\sin\theta$ and $\tan\theta$

a. $\sin\theta = \frac{1}{2}$, $\tan\theta = \frac{\sqrt{3}}{3}$

b. $\sin\theta = \frac{1}{2}$, $\tan\theta = -\frac{\sqrt{3}}{3}$

c. $\sin\theta = 1$, $\tan\theta = \frac{2\sqrt{3}}{3}$

d. $\sin\theta = -\frac{1}{2}$, $\tan\theta = \frac{\sqrt{3}}{3}$

Find the value of $\cot\left(\cos^{-1}\left(-\frac{\sqrt{3}}{2}\right)\right)$

a. $-\sqrt{3}$

b. $\frac{1}{2}$

c. $\frac{\sqrt{3}}{2}$

d. $\frac{\sqrt{3}}{3}$

Find the value of $\sin^{-1}\left(-\frac{\sqrt{3}}{2}\right)$

a. $\frac{5\pi}{6}$

b. $\frac{2\pi}{3}$

c. $-\frac{\pi}{6}$

d. $-\frac{\pi}{3}$

Given points $P=(-5,\ -2)$ and $Q=(-1,\ 5)$, find the vector $\vec{v}$ represented by the directed line segment $\overrightarrow{PQ}$, then find its magnitude.

a. $\vec{v}=\langle 6,\ -3\rangle$
$\|\vec{v}\|=3\sqrt{5}$

b. $\vec{v}=\langle -4,\ -7\rangle$
$\|\vec{v}\|=\sqrt{65}$

c. $\vec{v}=\langle 4,\ 7\rangle$
$\|\vec{v}\|=\sqrt{65}$

d. $\vec{v}=\langle -6,\ 3\rangle$
$\|\vec{v}\|=3\sqrt{5}$

Let $\vec{v} = \langle 4,\ 2 \rangle$ and $\vec{w} = \langle 9,\ 5 \rangle$, find the dot product of the two vectors

a. 26 b. 46 c. -37 d. 53

Which of the following pairs of vectors are orthogonal?

a. $v = 4i - 2j,\ w = 2i - 4j$

b. $v = 3i + j,\ w = 9i + 3j$

c. $v = i - j,\ w = i$

d. $v = -2i + j,\ w = i + 2j$

e. none of these

If $f(x) = \frac{1}{2}x$, find $\frac{f(x+h) - f(x)}{h}$, $h \neq 0$

a. 2

b. $\frac{1}{2}$

c. $\frac{x + \frac{1}{2}h}{h}$

d. 1

e. none of these

A right triangle has an acute angle θ such that $\sin\theta = \frac{7}{9}$, find $\tan\theta$

a. $\frac{7\sqrt{2}}{8}$

b. $\frac{4\sqrt{2}}{7}$

c. $\frac{\sqrt{130}}{7}$

d. $\frac{9\sqrt{130}}{130}$

e. none of these