

Question 1

Give your answer in interval notation.

Solve the inequality $\frac{x - 1}{x + 3} \geq 0$.

___ \cup ___

Question 2

Give your answer in interval notation.

Solve the quadratic inequality $x^2 + 2x - 63 > 0$.

___ \cup ___

Question 3

Give your final answer in interval notation.

Solve the inequality $|x + 1| \leq 6$.

Question 4

Use slopes to determine whether or not the points (5, -14), (7, 2), and (8, 10) are colinear.

- A. The points are not colinear.
- B. The points are colinear.

Question 5

Find an equation of the line parallel to $y = 5x - 4$ and through the point (-2, 8).

$y =$ ___

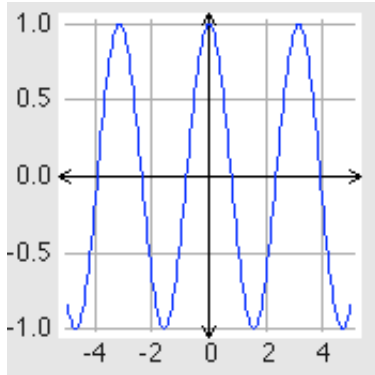
Question 6

Find an equation of the line perpendicular to $y = -3x + 5$ and intersecting the line at the point $(2, -1)$.

$y =$ _____

Question 7

Determine whether the following curve corresponds to a function.



- A. It is a function.
- B. It is not a function.

Question 8

Find the domain of the function

$$f(x) = \frac{x^2 + 2x - 12}{x^2 - 4}$$

- A. $(-\infty, -2)$
- B. $(2, \infty)$
- C. $(-\infty, -2) \cup (-2, 2) \cup (2, \infty)$
- D. $(-2, 2)$

Question 9

Give your answer in interval notation.

Find the domain of $f(x) = \sqrt{3x^2 - 48}$.

____ \cup ____

Question 10

Find the zeros of $f(x) = x^2 + x - 55$. Round your answers to three decimal places.

The solutions are $x =$ ____ and $x =$ ____.

Question 11

Find the domain of the function.

$$f(x) = \frac{2x}{x^2 - 6x + 3}$$

- A. $(-\infty, -2 - \sqrt{3}) \cup (-2 - \sqrt{3}, -2 + \sqrt{3}) \cup (-2 + \sqrt{3}, \infty)$
- B. $(-\infty, 4 - \sqrt{2}) \cup (4 - \sqrt{2}, 4 + \sqrt{2}) \cup (4 + \sqrt{2}, \infty)$
- C. $(-\infty, -4 - \sqrt{5}) \cup (-4 - \sqrt{5}, -4 + \sqrt{5}) \cup (-4 + \sqrt{5}, \infty)$
- D. $(-\infty, 3 - \sqrt{6}) \cup (3 - \sqrt{6}, 3 + \sqrt{6}) \cup (3 + \sqrt{6}, \infty)$

Question 12

Find the points of intersection of the parabola $y = x^2 - x - 3$ and the line $y = x + 12$.

The points of intersection are ____ and ____.

Question 13

Find the inverse of $f(x) = x^5 + 6$.

- A. $f^{-1}(x) = x^{1/5} + 6$
- B. $f^{-1}(x) = x^{1/5} - 6$
- C. $f^{-1}(x) = (x + 6)^{1/5}$
- D. $f^{-1}(x) = (x - 6)^{1/5}$

Question 14

Find the inverse of $f(x) = x^5 - 18$.

- A. $f^{-1}(x) = (x + 18)^{1/5}$
- B. $f^{-1}(x) = (x - 18)^{1/5}$
- C. $f^{-1}(x) = x^{1/5} - 18$
- D. $f^{-1}(x) = x^{1/5} + 18$

Question 15

Given that $f(x) = x^5 + 2x^3 + 3x + 3$ has an inverse, find $f^{-1}(3)$ and $f^{-1}(-3)$.

$$f^{-1}(3) = \underline{\quad} \quad \text{and} \quad f^{-1}(-3) = \underline{\quad}$$

Question 16

Find the inverse of $f(x) = \sqrt{8x^3 + 1}$.

$$f^{-1}(x) = \underline{\quad} \quad \text{whenever } x \geq \underline{\quad}.$$

Question 17

Find all solutions of the equation $2 \sin x - \sqrt{3} = 0$, for any integer n

- A. $\frac{2\pi}{3} + 2n\pi$, for any integer n
- B. $x = \frac{\pi}{3} + 2n\pi$, for any integer n
- C. $x = \frac{\pi}{3} + n\pi$ or $\frac{2\pi}{3} + n\pi$, for any integer n
- D. $x = \frac{\pi}{3} + 2n\pi$ or $\frac{2\pi}{3} + 2n\pi$, for any integer n

Question 18

Convert the degree measure 8° to radians.

_____ radians

Question 19

Find the amplitude, period, and frequency of $f(x) = 15 \sin 6x$.

- A. The amplitude is 6, the period is $\pi/3$ and the frequency is $3/\pi$.
- B. The amplitude is 15, the period is $\pi/3$ and the frequency is $3/\pi$.
- C. The amplitude is 6, the period is $3/\pi$ and the frequency is $\pi/3$.
- D. The amplitude is 15, the period is $3/\pi$ and the frequency is $\pi/3$.

Question 20

Find all solutions of the equation $2 \sin^2 x - \sqrt{2} \sin x = 0$.

- A. $x = \frac{\pi}{4} + 2n\pi$ or $x = \frac{3\pi}{4} + 2n\pi$
or $x = n\pi$ for any integer n .

π

B. $x = \frac{\pi}{2} + 2n\pi$ or $x = n\pi$ for any integer n .

C. $x = \frac{\pi}{3} + n\pi$ or $x = \frac{2\pi}{3} + 2n\pi$
or $x = n\pi$ for any integer n .

D. $x = 2n\pi$ or $x = \frac{\pi}{6} + 2n\pi$ for any integer n .