

Pre-Calculus 11 - VLN

Chapter 3: Quadratic Equations

Lesson 7: Quadratic Inequalities

Question #1

Reference Q.13864

Consider the number line shown



The inequality which has the solution shown is

- A. $(x - 1)(x + 3) \leq 0$
- B. $(x - 1)(x + 3) \geq 0$
- C. $(x + 1)(x - 3) \leq 0$
- D. $(x + 1)(x - 3) \geq 0$

Question #2

Reference Q.13874

Consider the number line shown



The inequality which has the solution shown is

- A. $x^2 - 2x - 48 < 0$
- B. $x^2 - 2x - 48 > 0$
- C. $x^2 + 2x - 48 < 0$
- D. $x^2 + 2x - 48 > 0$

Question #3

Reference Q.13865

Solve the following inequalities using sign analysis with test intervals.

- a. $x^2 - 8x + 15 < 0$
- b. $9x^2 + 2x \geq 0$

Question #4

Reference Q.13866

Solve the following inequalities using the sign analysis with test intervals.

- a. $3x^2 - 10x - 8 \leq 0$
- b. $32 - 4x - x^2 > 0$

Question #5

Reference Q.13867

Solve the following inequalities using sign analysis with a sign chart.

- a. $x^2 - 5x - 24 \leq 0$
- b. $x^2 + 5x + 6 > 0$

Question #6

Reference Q.13868

Solve the following inequalities using sign analysis with a sign chart.

- a. $3 + 2x - x^2 \leq 0$
- b. $9x^2 - 3x < 0$

Question #7

Reference Q.13869

Solve using sign analysis.

- a. $x(x + 4) < 0$
- b. $x(x + 4) < 21$
- c. $-4x(x + 4) < 0$

Question #8

Reference Q.20381

Determine the solutions of the following equation by creating two separate equations:

$$-2x^2 + x - 4 = x - 6$$

Question #9

Reference Q.20382

Determine the solution(s) of the following equation by creating two separate equations. Give answer accurate to two decimal places:

$$-x = x^2 - 2x - 1$$

Question #10

Reference Q.20383

- a. Determine the solution(s) of the following equation by creating two separate equations:
 $-x^2 + 3 = 2x + 4$
- b. Verify your solution by substituting the intersection point back into the equation.

Question #11

Reference Q.20384

- a. Determine the solution(s) of the following equation by creating two separate equations. Give answer accurate to two decimal places:
 $3(x - 4)^2 + 3.2 = 0.25x^2 + 4.5$
- b. Verify one of your solutions by substituting the intersection point back into the equation.

Question #12

Reference Q.20385

Determine the solution(s) of the following equation by combining into one equation and graphing the result:
 $x^2 + 1 = 10$

Question #13

Reference Q.20386

Determine the solution(s) of the following equation by combining into one equation and graphing the result. Give answer accurate to two decimal places:
 $-x^2 + 2 = x - 1$

Question #14

Reference Q.20387

- a. Determine the solution(s) of the following equation by combining into one equation and graphing the result:
 $4x - 1 = 2x^2 + 4x - 1$
- b. Verify your solution algebraically.

Question #15

Reference Q.20388

- a. How many solutions does the following equation have:
 $x^2 + 2x - 5 = -x^2 - 10x - 25$?
Prove your answer by combining the equations and graphing the result.
- b. Prove your answer by graphing both sides of the equation separately, but on the same grid.

Question #16: Solving Linear Inequalities01

Reference Q.20389

Given the following linear inequality: $x - 2 < 5$

- a. Determine the critical point of this inequality by changing the inequality sign, $<$, to an equal sign, $=$, and solve for x .
- b. Place this critical point on a number line and test both sides to determine the solution of the inequality.

Question #17

Reference Q.13873

The approximate height, h metres, of an object, at time t seconds, is given by the equation $h = 60t - 5t^2$.

- a. Calculate t when $h = 0$.
- b. Explain why the height of the object cannot be greater than 180 metres.
- c. Determine the interval for t such that $h \geq 100$.

Question #18

Reference Q.13875

Use sign analysis to solve the following inequalities.

- a. $-2(x - 2)(5 - x)(x + 3) > 0$
- b. $\frac{x^2 + 3x}{x - 2} \leq 0$