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QUESTION 1

Fill in the blank(s) with the correct answer.

Determine the solution to this inequality.

$x^2 + 8x + 15 \geq 0$

The solution is

$(-\infty,$ -5 ✓ $] \cup [$ -3 ✓ $, \infty)$

.

QUESTION 2

Fill in the blank(s) with the correct answer.

Solve the polynomial inequality.

$-4x^2 + 13x - 3 \geq 0$

The solution is

$[$ 0.25 ✓ $,$

3 ✓

]

.

QUESTION 3

Drag and drop the correct answer into the space(s) provided.

Solve the inequality.

$x^2 - 4x - 21 \leq 0$

The end behavior is

$\lim_{x \to -\infty} (x^2 - 4x - 21) =$

∞ ✓.

The solution is $[-3, 7]$ ✓

$-\infty$ | $(-\infty, -3] \cup [7, \infty)$ | 0

$(-\infty, -3) \cup (7, \infty)$ | 1 | $(-3, 7)$

QUESTION 4

Drag and drop the correct answer into the space(s) provided.

Find the solution to the inequality.

$-2x^2 + 7x + 15 > 0$

$(-1.5, 5)$ ✓

$(-\infty, -5) \cup (1.5, \infty)$

$(-\infty, -1.5) \cup (5, \infty)$

$(-5, 1.5)$

QUESTION 5

Drag and drop the correct answer into the space(s) provided.

A packing company is creating boxes that have volumes of at least 756 cubic decimeters. The height of the boxes is 2 dm more than the width. The length is 5 dm more than the width. Write and solve an inequality using

x

as the width.

The degree of the polynomial that represents this situation is 3 ✓, and

the leading coefficient is positive ✓.

The polynomial has 1 ✓ real zero(s).

The width of these boxes is 7 dm or greater.

negative 2 4 6 8 5 less

QUESTION 6

Fill in the blank(s) with the correct answer.

Determine the solution to this inequality.

$3x^4 + 6x^3 - 12x^2 - 24x \geq 0$

Enter your answers in the spaces provided.

Factor out the GCF:

$3x$

$(x^3 +$ 2

$x^2 -$ 4

$x -$ 8

$) \geq 0$

Factored form:

$3x(x -$ 2

$)(x+$

2 ✓

$)(x+$

2 ✓

$)\geq 0$

Solution:

$(-\infty,$

0 ✓

$]\cup[$

2 ✓

$,\infty)$

QUESTION 7

Fill in the blank(s) with the correct answer.

A gardener is planning a new rectangular garden with a perimeter of 34 meters and an area of at most 66 square meters. Let

x

represent the length and

y

represent the width of the garden, where the length is greater than the width. Write and solve an inequality to determine the possible dimensions for the garden.

$-x^2+$

17 ✓

$x \leq$

66 ✓

Possible garden dimensions:

Length:

$x \geq$

11 ✓ m and

$x < 17$ m

Width:

$0 < y \leq$

6 ✓ m

QUESTION 8

Choose the correct answer from the drop-down menu.

Solve the inequality

$x^2 - 2x - 8 > 0$

.

The zeros are −2 and 4 ✓ .

The end behavior is

$\lim_{x \to -\infty} (x^2 - 2x - 8) =$

∞ ✓ and

$\lim_{x \to \infty} (x^2 - 2x - 8) =$

∞ ✓ .

The solution is $(-\infty, -2) \cup (4, \infty)$ ✓ .

QUESTION 9

Choose the correct answer from the drop-down menu.

Solve the inequality.

$x^2 - 7x + 12 < 0$

The zeros are 3 and 4 ✓ .

The end behavior is

$\lim_{x \to -\infty} (x^2 - 7x + 12) =$

∞ ✓ and

$\lim_{x \to \infty} (x^2 - 7x + 12) =$

∞ ✓ .

The solution to the inequality is $(3, 4)$ ✓ .

QUESTION 10

Choose the correct answer from the drop-down menu.

Determine the solution to this inequality.

$-5x^5+5x^4+35x^3-65x^2+30x<0$

The solution set is $(-3,\ 0)$ ✓

U

$(2,\ \infty)$ ✓.

QUESTION 11

Choose the correct answer from the drop-down menu.

Determine the solution to the inequality

$-2x^2-11x-15<0$

.

$(-\infty,\ -3)\cup(-2.5,\ \infty)$ ✓

QUESTION 12

QUESTION 12

Select the correct option.

What is the solution to

$x^2 + 3x - 18 > 0$

?

- ○ $(-3, 6)$
- ○ $(-6, 3)$
- ✓ $(-\infty, -6) \cup (3, \infty)$
- ○ $(-\infty, -3) \cup (6, \infty)$

QUESTION 13

Select the correct option.

What is the solution of this inequality?

$4x^3 + 20x^2 + 12x - 36 \leq 0$

- ○ $[-3, \infty)$
- ○ $(-\infty, -3]$

$(-\infty, 1]$ ✓

$[1, \infty)$

QUESTION 14

Select the correct option.

Solve the following inequality.

$-4x^2 + 5x + 6 < 0$

$(-\infty, -2) \cup (0.75, \infty)$

$(-0.75, 2)$

$(-2, 0.75)$

$(-\infty, -0.75) \cup (2, \infty)$ ✓

QUESTION 15

QUESTION 15

Select the correct option.

Solve the inequality

$-2x^2-7x+4\geq 0$

.

- [x] $[-4, 0.5]$ ✓
- [ ] $(-\infty, -0.5]\cup[4, \infty)$
- [ ] $[-0.5, 4]$
- [ ] $(-\infty, -4]\cup[0.5, \infty)$

QUESTION 16

Drag and drop the correct answer into the space(s) provided.

Solve the inequality

$x^2+6x-5<8x+3$

.

$(-2, 4)$ ✓

$(-3, 1)$ $(-\infty, -3)\cup(1, \infty)$

$(-3, 1)$ $(-\infty, -3) \cup (1, \infty)$

$(-\infty, -2) \cup (4, \infty)$

QUESTION 17

Drag and drop the correct answer into the space(s) provided.

Solve the inequality

$6x^2 - 6x - 2 \leq 8x + 7$

.

The solution is $\left[\frac{7-\sqrt{103}}{6}, \frac{7+\sqrt{103}}{6}\right]$ ✓.

$\left[-3, \frac{1}{2}\right]$ $(-\infty, \frac{7-6\sqrt{103}}{6}) \cup (\frac{7+6\sqrt{103}}{6}, \infty)$

$(-\infty, -3] \cup [\frac{1}{2}, \infty)$

QUESTION 18

Drag and drop the correct answer into the space(s) provided.

Solve the inequality

$(x-3)(x+5)<0$

.

$(-5, 3)$ ✓

$(-\infty, -5) \cup (3, \infty)$

$(-3, 5)$

$(-\infty, -3) \cup (5, \infty)$

QUESTION 19

Fill in the blank(s) with the correct answer.

Solve the inequality

$(x+4)(x-8)<0$

.

The solution to this inequality is (-4 ✓ , 8 ✓).

QUESTION 20

Choose the correct answer from the drop-down menu.

Solve this inequality.

$(x-1)(x+3) \geq 0$

The solution is $(-\infty, -3] \cup [1, \infty)$ ✓ .

QUESTION 21

Choose the correct answer from the drop-down menu.

Solve the inequality

$x^2 - 2x - 5 < 6x + 4$

.

The zeros of the inequality are -1 and 9 ✓ .

The solution of the inequality is $(-1, 9)$ ✓ .

QUESTION 22

Choose the correct answer from the drop-down menu.

Solve this inequality.

$x^2 + 9x - 1 \geq 4x + 13$

The solution set is $(-\infty, -7] \cup [2, \infty)$.

QUESTION 23

Choose the correct answer from the drop-down menu.

Solve

$-4x^2 - x - 2 > -5x - 9$

.

The zeros are $\frac{1 \pm 2\sqrt{2}}{2}$.

The solution is $\left(\frac{1-2\sqrt{2}}{2}, \frac{1+2\sqrt{2}}{2}\right)$.

QUESTION 24

Choose the correct answer from the drop-down menu.

Solve this inequality.

$3x^2 + 4x + 12 < 17$

The zeros of the inequality are $\frac{-2 \pm \sqrt{19}}{3}$ ✓ .

The solution of the inequality is $\left(\frac{-2-\sqrt{19}}{3}, \frac{-2+\sqrt{19}}{3}\right)$ ✓ .

QUESTION 25

Select the correct option.

Solve the inequality

$(x-4)(x-1) > 0$

.

What is the solution to this inequality?

- ○ $(-\infty, -1) \cup (4, \infty)$
- ✓ $(-\infty, 1) \cup (4, \infty)$
- ○ $(1, 4)$
- ○ $(-\infty, -4) \cup (1, \infty)$

QUESTION 26

Select the correct option.

What is the solution to

$x^2 + 12x + 13 > x - 17$

?

- [x] $(-\infty, -6) \cup (-5, \infty)$
- [ ] $(-\infty, -5) \cup [6, \infty)$
- [ ] $(-\infty, -6) \cup (5, \infty)$
- [ ] $(-6, -5)$

QUESTION 27

Select the correct option.

What is the solution to this inequality?

$-2x^2 + 4x - 8 < -7x - 5$

$\left(\frac{11-\sqrt{97}}{4}, \frac{11+\sqrt{97}}{4}\right)$

$\left(-\infty, \frac{11-\sqrt{97}}{4}\right) U \left(\frac{11+\sqrt{97}}{4}, \infty\right)$ ✓

$(-\infty, -1) U \left(\frac{7}{4}, \infty\right)$

$\left(-1, \frac{7}{4}\right)$

QUESTION 28

Select the correct option.

What is the solution to this inequality?

$5x^2 - 2x - 6 \geq 2x + 12$

$(-\infty, \frac{2-\sqrt{94}}{5}] U [\frac{2+\sqrt{94}}{5}, \infty)$ ✓

- $\left[-\frac{9}{5}, 2\right]$
- $(-\infty, -\frac{9}{5}] \cup [2, \infty)$
- $\left[\frac{2-\sqrt{94}}{5}, \frac{2+\sqrt{94}}{5}\right]$

QUESTION 29

Select the correct option.

Solve the inequality

$(x-5)(x+2) \geq 0$

.

What is the solution to this inequality?

- $[-5, 2]$
- $[-2, 5]$
- $(-\infty, -5] \cup [2, \infty)$

- [x] $(-\infty, -2] \cup [5, \infty)$

QUESTION 30

Solve the inequality

$x^2 - 4x + 3 > 3$

. Select the values that are part of the solution set.

- [ ] 0
- [x] -2
- [x] 6
- [ ] 4
- [ ] 2
- [ ] 1