

Student: Eboni Goff
Date: 3/16/13
Time: 3:31 PM

Instructor: Brett Legault
Course: MAT109 --Sec
20101--Legault--March 18th
Book: Sullivan: Algebra &
Trigonometry Enhanced w/ Graphing
Utilities, 6e

Assignment: Week 1 Homework

1. If -3 and 5 are the coordinates of two points on the real number line, the distance between these points is _____.

If -3 and 5 are the coordinates of two points on the real number line, the distance between these points is .

(Type an integer or a decimal.)

2. Use the converse of the Pythagorean Theorem to check whether a triangle whose sides are of lengths 11 , 60 , and 61 is a right triangle.

First square the lengths of the sides.

$$11^2 = \square$$

$$60^2 = \square$$

$$61^2 = \square$$

In the given triangle, are there two sides that when squared and added together equal the square of the third side?

- Yes
 No

Is the triangle a right triangle?

- Yes
 No

Student: Eboni Goff
Date: 3/16/13
Time: 3:31 PM

Instructor: Brett Legault
Course: MAT109 --Sec
20101--Legault--March 18th
Book: Sullivan: Algebra &
Trigonometry Enhanced w/ Graphing
Utilities, 6e

Assignment: Week 1 Homework

3. Complete the sentence below.

If (x,y) are the coordinates of a point P in the xy -plane, then x is called the _____ of P and y is the _____ of P.

If (x,y) are the coordinates of a point P in the xy -plane, then x is called the _____ of

y - coordinate
distance
quadrant
x - coordinate

P and y is the _____ of P.

y - coordinate
distance
x - coordinate
quadrant

4. Complete the sentence below.

The coordinate axes divide the xy -plane into four sections called _____.

The coordinate axes divide the xy -plane into four sections called _____.

quadrants.
coordinates.
rectangular systems.

5. State whether the following statement is true or false.

The distance between two points is sometimes a negative number.

Choose the correct answer below.

- True
 False

Student: Eboni Goff
Date: 3/16/13
Time: 3:31 PM

Instructor: Brett Legault
Course: MAT109 --Sec
20101--Legault--March 18th
Book: Sullivan: Algebra &
Trigonometry Enhanced w/ Graphing
Utilities, 6e

Assignment: Week 1 Homework

6. State whether the following statement is true or false.

The midpoint of a line segment is found by averaging the x-coordinates and averaging the y-coordinates of the endpoints.

Choose the correct answer below.

- False
 - True
-

Student: Eboni Goff
Date: 3/16/13
Time: 3:31 PM

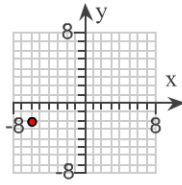
Instructor: Brett Legault
Course: MAT109 --Sec
20101--Legault--March 18th
Book: Sullivan: Algebra &
Trigonometry Enhanced w/ Graphing
Utilities, 6e

Assignment: Week 1 Homework

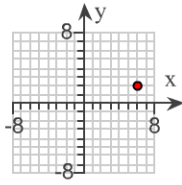
7. Plot $(6,2)$, $(0, -5)$, and $(-5, -2)$ in the xy -plane. Tell in which quadrant or on what coordinate axis each point lies.

(a) Choose the graph that correctly plots the point $(6,2)$.

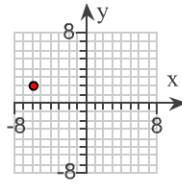
A.



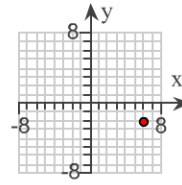
B.



C.



D.



In which quadrant does the point $(6,2)$ lie?

quadrant II

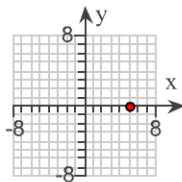
quadrant I

quadrant III

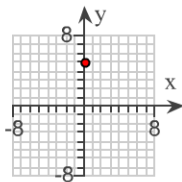
quadrant IV

(b) Choose the graph that correctly plots the point $(0, -5)$.

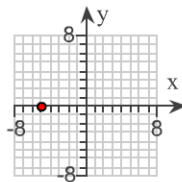
A.



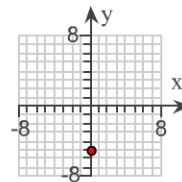
B.



C.



D.



On which coordinate axis does the point $(0, -5)$ lie?

y-axis

x-axis

(c) Choose the graph that correctly plots the point $(-5, -2)$.

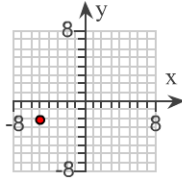
Student: Eboni Goff
Date: 3/16/13
Time: 3:31 PM

Instructor: Brett Legault
Course: MAT109 --Sec
20101--Legault--March 18th
Book: Sullivan: Algebra &
Trigonometry Enhanced w/ Graphing
Utilities, 6e

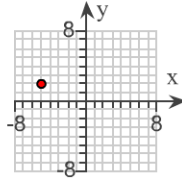
Assignment: Week 1 Homework

7.
(cont.)

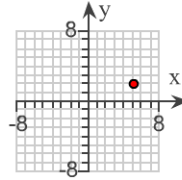
A.



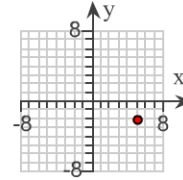
B.



C.



D.



In which quadrant does the point $(-5, -2)$ lie?

quadrant II

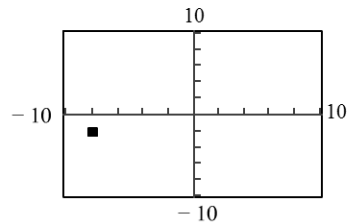
quadrant IV

quadrant III

quadrant I

8.

Determine the coordinates of the point shown. Tell in which quadrant the point lies. Assume the coordinates are integers.



Determine the coordinates of the point shown.

(Type an ordered pair.)

Tell in which quadrant the point lies.

Quadrant III

Quadrant II

Quadrant I

Quadrant IV

Student: Eboni Goff
Date: 3/16/13
Time: 3:31 PM

Instructor: Brett Legault
Course: MAT109 --Sec
20101--Legault--March 18th
Book: Sullivan: Algebra &
Trigonometry Enhanced w/ Graphing
Utilities, 6e

Assignment: Week 1 Homework

9. Select a setting so that each given point will lie within the viewing window.

$(-13, 5)$, $(3, -5)$, $(-3, -7)$



Xmin = -4
Xmax = 14
Xscl = 1
Ymin = -6
Ymax = 8
Yscl = 1



Xmin = -14
Xmax = 4
Xscl = 1
Ymin = -8
Ymax = 6
Yscl = 1

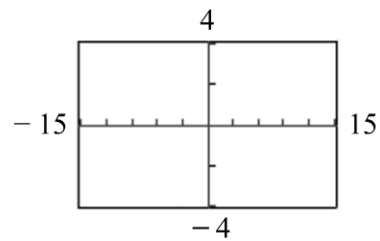


Xmin = -6
Xmax = 8
Xscl = 1
Ymin = -4
Ymax = 14
Yscl = 1



Xmin = -8
Xmax = 6
Xscl = 1
Ymin = -14
Ymax = 4
Yscl = 1

10. Determine the viewing window used.



Xmin =

Xmax =

Xscl =

Ymin =

Ymax =

Yscl =

Student: Eboni Goff
Date: 3/16/13
Time: 3:31 PM

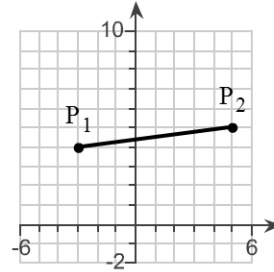
Instructor: Brett Legault
Course: MAT109 --Sec
20101--Legault--March 18th
Book: Sullivan: Algebra &
Trigonometry Enhanced w/ Graphing
Utilities, 6e

Assignment: Week 1 Homework

11. Find the distance $d(P_1, P_2)$ between the given points P_1 and P_2 .

$$P_1 = (-3, 4)$$

$$P_2 = (5, 5)$$



$$d(P_1, P_2) = \square$$

(Simplify your answer. Type an exact answer, using radicals as needed.)

-
12. Find the distance $d(P_1, P_2)$ between the points P_1 and P_2 .

$$P_1 = (-8, -2)$$

$$P_2 = (12, 13)$$

$$d(P_1, P_2) = \square$$

(Simplify your answer.)

Student: Eboni Goff
Date: 3/16/13
Time: 3:31 PM

Instructor: Brett Legault
Course: MAT109 --Sec
20101--Legault--March 18th
Book: Sullivan: Algebra &
Trigonometry Enhanced w/ Graphing
Utilities, 6e

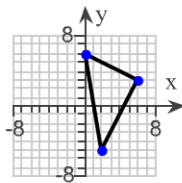
Assignment: Week 1 Homework

13. Plot each point and form the right triangle ABC. Verify that the triangle is a right triangle. Find its area.

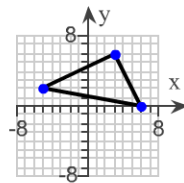
$$A = (-5, 2); \quad B = (6, 0); \quad C = (3, 6)$$

Choose the correct graph below that shows points A, B, C, and triangle ABC.

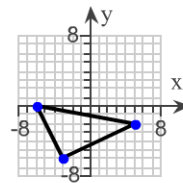
A.



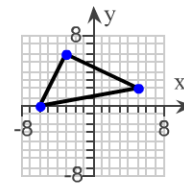
B.



C.



D.



To show that the triangle is a right triangle, show that the sum of the squares of the lengths of two of the sides (the legs) equals the square of the length of the third side (the hypotenuse).

The sum of the squares of the lengths of the legs of the triangle is .

The square of the length of the hypotenuse of the triangle is .

Find the area of the triangle.

The area of the triangle is square units.

14. Find the midpoint of the line segment joining the points P_1 and P_2 .

$$P_1 = (3, 1)$$

$$P_2 = (-1, 2)$$

The midpoint is .

(Type an ordered pair. Use integers or simplified fractions for any numbers in the expression.)

Student: Eboni Goff
Date: 3/16/13
Time: 3:31 PM

Instructor: Brett Legault
Course: MAT109 --Sec
20101--Legault--March 18th
Book: Sullivan: Algebra &
Trigonometry Enhanced w/ Graphing
Utilities, 6e

Assignment: Week 1 Homework

15. Find the midpoint of the line segment joining the points P_1 and P_2 .

$$P_1 = (-5, 5)$$

$$P_2 = (1, 7)$$

The midpoint is .

(Type an ordered pair. Use integers or simplified fractions for any numbers in the expression.)

16. Determine whether the given points are on the graph of the equation $y^2 = x^2 + 4$.

(a) (0,2) (b) (2,0) (c) (-2,0)

(a) Is (0,2) on the graph of $y^2 = x^2 + 4$?

No

Yes

(b) Is (2,0) on the graph of $y^2 = x^2 + 4$?

No

Yes

(c) Is (-2,0) on the graph of $y^2 = x^2 + 4$?

Yes

No

Student: Eboni Goff
Date: 3/16/13
Time: 3:31 PM

Instructor: Brett Legault
Course: MAT109 --Sec
20101--Legault--March 18th
Book: Sullivan: Algebra &
Trigonometry Enhanced w/ Graphing
Utilities, 6e

Assignment: Week 1 Homework

17. Determine which of the given points are on the graph of the equation.

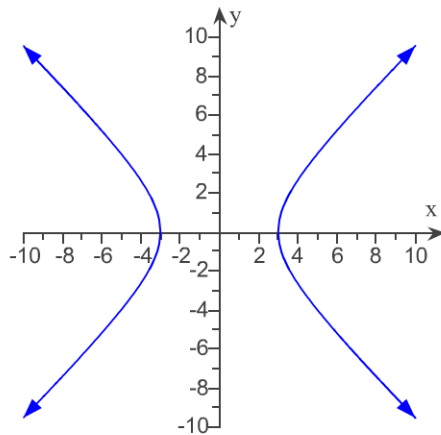
Equation: $x^2 + y^2 = 2$

Points: $(-1, 1)$, $(0, 0)$, $(-1, -1)$

Which of these points are on the graph of the equation? Select all that apply.

- A. $(-1, 1)$
 B. $(0, 0)$
 C. $(-1, -1)$
 D. None of the points are on the graph.

18. The graph of an equation is given. List the intercepts of the graph.



List the x-intercepts. Select the correct choice below and fill in any answer boxes within your choice.

- A.
(Type an ordered pair. Use a comma to separate answers as needed.)
 B. There is no x-intercept.

List the y-intercepts. Select the correct choice below and fill in any answer boxes within your choice.

- A.
(Type an ordered pair. Use a comma to separate answers as needed.)
 B. There is no y-intercept.

Student: Eboni Goff
Date: 3/16/13
Time: 3:31 PM

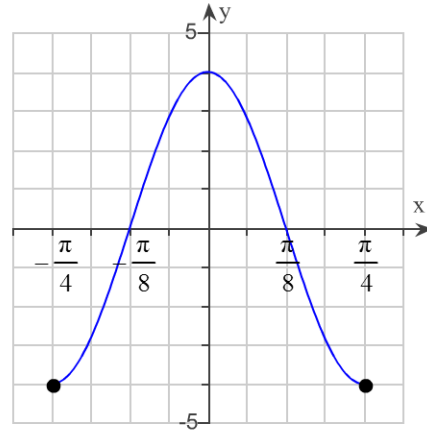
Instructor: Brett Legault
Course: MAT109 --Sec
20101--Legault--March 18th
Book: Sullivan: Algebra &
Trigonometry Enhanced w/ Graphing
Utilities, 6e

Assignment: Week 1 Homework

19. List the intercepts of the graph shown on the right.

The intercept(s) is/are .

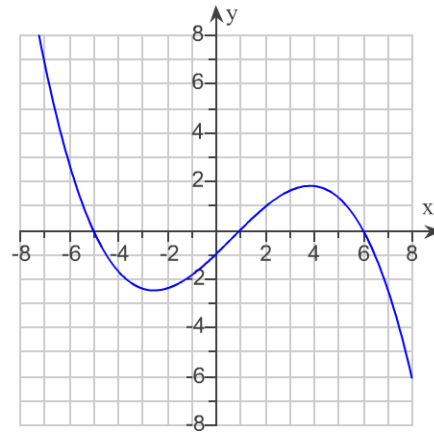
(Type an exact answer, using π as needed.
Type an ordered pair. Use integers or fractions
for any numbers in the expression. Use a
comma to separate answers as needed.)



20. List the intercepts of the graph shown on the right.

The intercept(s) is/are .

(Type an ordered pair. Use integers or
fractions for any numbers in the expression.
Use a comma to separate answers as needed.)



Student: Eboni Goff
Date: 3/16/13
Time: 3:31 PM

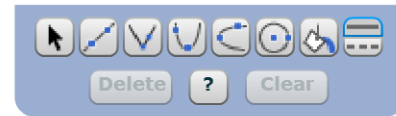
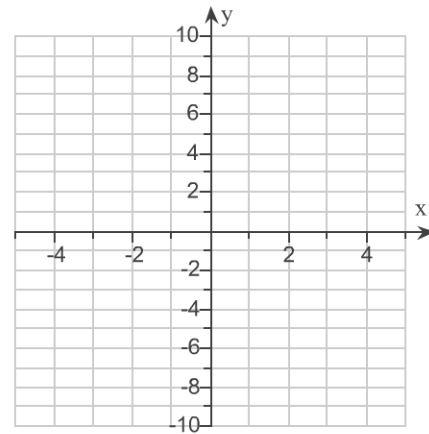
Instructor: Brett Legault
Course: MAT109 --Sec
20101--Legault--March 18th
Book: Sullivan: Algebra &
Trigonometry Enhanced w/ Graphing
Utilities, 6e

Assignment: Week 1 Homework

21. Graph the equation by hand by plotting points. Verify your result using a graphing utility.

$$y = x + 2$$

Use the graphing tool to graph the equation.

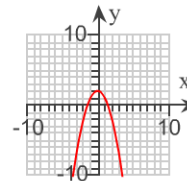


22. Graph the following equation by hand by plotting points. Verify your results using a graphing utility.

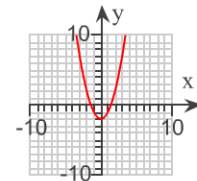
$$y = x^2 - 2$$

Choose the correct graph below.

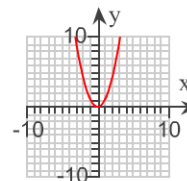
A.



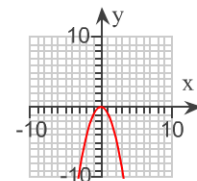
B.



C.



D.



Student: Eboni Goff
Date: 3/16/13
Time: 3:31 PM

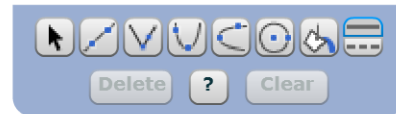
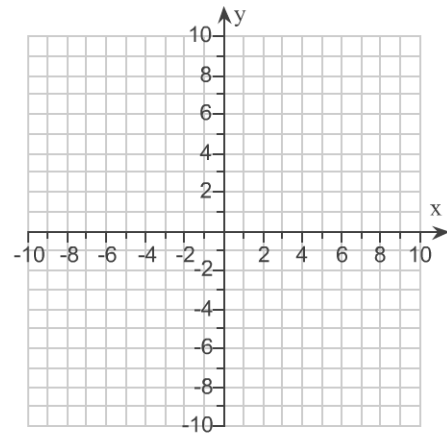
Instructor: Brett Legault
Course: MAT109 --Sec
20101--Legault--March 18th
Book: Sullivan: Algebra &
Trigonometry Enhanced w/ Graphing
Utilities, 6e

Assignment: Week 1 Homework

23. Graph the following equation by hand by plotting points. Verify your results using a graphing utility.

$$3x + 4y = 12$$

Use the graphing tool to graph the equation.



Student: Eboni Goff
Date: 3/16/13
Time: 3:31 PM

Instructor: Brett Legault
Course: MAT109 --Sec
20101--Legault--March 18th
Book: Sullivan: Algebra &
Trigonometry Enhanced w/ Graphing
Utilities, 6e

Assignment: Week 1 Homework

24. A major league baseball "diamond" is actually a square, 90 feet on a side (see the figure). Overlay a rectangular coordinate system on it so that the origin is at home plate, the positive x-axis lies in the direction from home plate to first base, and the positive y-axis lies in the direction from home plate to third base.



- (a) What are the coordinates of third base? Use feet as the unit of measurement, so that one unit on the graph corresponds to one foot on the field.

The coordinates of third base are .

- (b) If the right fielder is located at $(300,10)$, approximately how far is it from the right fielder to second base?

The right fielder is about feet from second base.
(Round to the nearest tenth as needed.)

- (c) If the center fielder is located at $(240,240)$, approximately how far is it from the center fielder to third base?

The center fielder is about feet from third base.
(Round to the nearest tenth as needed.)

25. Evaluate $4x - 3 - 7(x + 2)$ for $x = 5$.

For $x = 5$, the value of $4x - 3 - 7(x + 2)$ is .

26. Is $x = 4$ in the domain of $\frac{1}{x + 4}$?

Choose the correct answer below.

- Yes
 No

Student: Eboni Goff
Date: 3/16/13
Time: 3:31 PM

Instructor: Brett Legault
Course: MAT109 --Sec
20101--Legault--March 18th
Book: Sullivan: Algebra &
Trigonometry Enhanced w/ Graphing
Utilities, 6e

Assignment: Week 1 Homework

27. Fill in the blanks.

An equation of the form $ax + b = 0$ is called a _____ equation or a _____ equation.

An equation of the form $ax + b = 0$ is called a equation or a equation.

28. Determine whether the following statement is true or false.

Some equations have no solution.

Choose the correct answer below.

- False
 True

29. Solve the equation.

$$5x - 2 = 0$$

The solution set is .

30. Use a graphing utility to approximate the real solutions, if any, of the given equation rounded to two decimal places. All solutions lie between -10 and 10 .

$$x^3 - 9x + 3 = 0$$

What are the approximate real solutions? Select the correct choice below and fill in any answer boxes within your choice.

- A. $x \approx$
(Round to two decimal places as needed. Use a comma to separate answers as needed.)
 B. There are no solutions.

Student: Eboni Goff
Date: 3/16/13
Time: 3:31 PM

Instructor: Brett Legault
Course: MAT109 --Sec
20101--Legault--March 18th
Book: Sullivan: Algebra &
Trigonometry Enhanced w/ Graphing
Utilities, 6e

Assignment: Week 1 Homework

31. Use a graphing utility to approximate the real solutions, if any, of the given equation rounded to two decimal places. All solutions lie between -10 and 10 .

$$x^4 - 3x^3 + 5x - 1 = 0$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A. The solution set is $\{\square\}$.
(Round to two decimal places as needed. Use a comma to separate answers as needed.)
- B. There are no solutions.

32. Solve the equation.

$$3x + 18 = x$$

Select the correct choice below and fill in any answer boxes in your choice.

- A. The solution set is $\{\square\}$. (Simplify your answer.)
- B. There is no solution.

33. Solve the equation.

$$5(5 + 2x) = 9(x - 5)$$

Select the correct choice below and fill in any answer boxes in your choice.

- A. The solution set is $\{\square\}$. (Simplify your answer.)
- B. There is no solution.

Student: Eboni Goff
Date: 3/16/13
Time: 3:31 PM

Instructor: Brett Legault
Course: MAT109 --Sec
20101--Legault--March 18th
Book: Sullivan: Algebra &
Trigonometry Enhanced w/ Graphing
Utilities, 6e

Assignment: Week 1 Homework

34. Solve the following equation algebraically. Verify your results using a graphing utility.

$$2(3x - 7) + 6(x - 2) = -3(3 - 5x) + 5x - 7$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A. The solution set is $\{\square\}$.
 B. There is no solution.

35. Solve the equation.

$$x(2x - 6) = (2x + 8)(x - 6)$$

Select the correct choice below and fill in any answer boxes in your choice.

- A. The solution set is $\{\square\}$. (Simplify your answer.)
 B. There is no solution.

36. Going into the final exam, which will count as two tests, Brooke has test scores of 75, 80, 70, 63, and 94. What score does Brooke need on the final in order to have an average score of 80?

Brooke needs a score of .

37. There were 373 tickets sold for a basketball game. The activity cardholders' tickets cost \$1.75 and the non-cardholders' tickets cost \$2.50. The total amount of money collected was \$766.75. How many of each kind of ticket were sold?

How many activity cardholders' tickets were sold?

How many non-cardholders' tickets were sold?

Student: Eboni Goff
Date: 3/16/13
Time: 3:31 PM

Instructor: Brett Legault
Course: MAT109 --Sec
20101--Legault--March 18th
Book: Sullivan: Algebra &
Trigonometry Enhanced w/ Graphing
Utilities, 6e

Assignment: Week 1 Homework

38. Solve the following equation.

$$(x - 3)(5x + 4) = 0$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A. The solution set is $\{\square\}$.
(Type an integer or a simplified fraction. Use a comma to separate answers as needed.)
- B. There is no solution.

39. Fill in the blanks so that the resulting statement is true.

When a quadratic equation has a repeated solution, it is called a _____ root or a root of _____.

When a quadratic equation has a repeated solution, it is called a root or a root of

40. Complete the sentence below.

The quantity $b^2 - 4ac$ is called the _____ of a quadratic equation. If it is _____, the equation has no real solution.

The quantity $b^2 - 4ac$ is called the of a quadratic equation. If it is the equation has no real solution.

Student: Eboni Goff
Date: 3/16/13
Time: 3:31 PM

Instructor: Brett Legault
Course: MAT109 --Sec
20101--Legault--March 18th
Book: Sullivan: Algebra &
Trigonometry Enhanced w/ Graphing
Utilities, 6e

Assignment: Week 1 Homework

41. Fill in the blank so that the resulting statement is true.

Quadratic equations are sometimes called _____-degree equations.

Quadratic equations are sometimes called -degree equations.

42. Determine whether the statement is true or false.

Quadratic equations always have two real solutions.

Choose the correct answer below.

- True
 False

43. Solve the following equation by factoring.

$$x^2 - 100 = 0$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A. The solution set is .
(Type an integer or a simplified fraction. Use a comma to separate answers as needed.)
 B. There is no solution.

Student: Eboni Goff
Date: 3/16/13
Time: 3:31 PM

Instructor: Brett Legault
Course: MAT109 --Sec
20101--Legault--March 18th
Book: Sullivan: Algebra &
Trigonometry Enhanced w/ Graphing
Utilities, 6e

Assignment: Week 1 Homework

44. Solve the following equation by factoring.

$$z^2 + 2z - 35 = 0$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A. The solution set is $\{\square\}$.
(Type an integer or a simplified fraction. Use a comma to separate answers as needed.)
- B. There is no solution.

45. Solve the following equation by factoring.

$$x(x - 11) + 18 = 0$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A. The solution set is $\{\square\}$.
(Type an integer or a simplified fraction. Use a comma to separate answers as needed.)
- B. There is no solution.

46. Solve the following equation by factoring.

$$\frac{7(x - 2)}{x - 3} + \frac{13}{x} = \frac{-13}{x(x - 3)}$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A. The solution set is $\{\square\}$.
(Type an integer or a simplified fraction. Use a comma to separate answers as needed.)
- B. There is no solution.

Student: Eboni Goff
Date: 3/16/13
Time: 3:31 PM

Instructor: Brett Legault
Course: MAT109 --Sec
20101--Legault--March 18th
Book: Sullivan: Algebra &
Trigonometry Enhanced w/ Graphing
Utilities, 6e

Assignment: Week 1 Homework

47. Solve the following equation by the square root method.

$$(3y + 9)^2 = 81$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A. The solution set is $\{\square\}$.
(Type an integer or a simplified fraction. Use a comma to separate answers as needed.)
- B. There is no solution.

48. Solve the following equation by completing the square.

$$x^2 + 8x = -15$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- A. The solution set is $\{\square\}$.
(Type an integer or a simplified fraction. Use a comma to separate answers as needed.)
- B. There is no solution.

49. Use the quadratic formula to find the real solutions, if any, of the equation.

$$x^2 + 2x - 14 = 0$$

Select the correct choice below and fill in any answer boxes within your choice.

- A. The solution set is $\{\square\}$.
(Simplify your answer. Type an exact answer, using radicals as needed. Use a comma to separate answers as needed.)
- B. There are no real solutions.

Student: Eboni Goff
Date: 3/16/13
Time: 3:31 PM

Instructor: Brett Legault
Course: MAT109 --Sec
20101--Legault--March 18th
Book: Sullivan: Algebra &
Trigonometry Enhanced w/ Graphing
Utilities, 6e

Assignment: Week 1 Homework

50. Find the real solutions, if any, of the following equation. Use the quadratic formula.

$$x^2 - 6x - 1 = 0$$

Select the correct choice below and, if necessary, fill in the answer box to complete your answer.

- A. The solution set is $\{\square\}$.
(Simplify your answer. Type an exact answer, using radicals as needed. Use a comma to separate answers as needed. Use integers or fractions for any numbers in the expression.)
- B. The solution is not a real number.

51. Find the real solutions, if any, using the quadratic formula.

$$9y^2 - y + 8 = 0$$

Select the correct choice below and fill in any answer boxes within your choice.

- A. The solution set is $\{\square\}$.
(Simplify your answer. Use a comma to separate answers as needed.)
- B. There are no real solutions.

52. Find the real solutions, if any, of the following equation. Use the quadratic formula.

$$16t^2 - 8t + 1 = 0$$

Select the correct choice below and, if necessary, fill in the answer box to complete your answer.

- A. The solution set is $\{\square\}$.
(Simplify your answer. Type an exact answer, using radicals as needed. Use a comma to separate answers as needed. Use integers or fractions for any numbers in the expression.)
- B. The solution is not a real number.

Student: Eboni Goff
Date: 3/16/13
Time: 3:31 PM

Instructor: Brett Legault
Course: MAT109 --Sec
20101--Legault--March 18th
Book: Sullivan: Algebra &
Trigonometry Enhanced w/ Graphing
Utilities, 6e

Assignment: Week 1 Homework

53. Use the discriminant to determine whether the quadratic equation has two unequal real solutions, a repeated real solution, or no real solution, without solving the equation.

$$6x^2 - 4x + 7 = 0$$

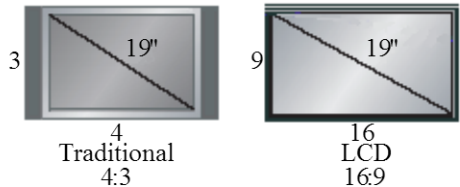
Choose the sentence that describes the number of real solutions to the quadratic equation.

- There is a repeated solution.
- There is no real solution.
- There are two unequal real solutions.

54. Find the dimensions of a rectangle whose perimeter is 26 meters and whose area is 42 square meters.

The sides of the rectangle measure meters.
(Use a comma to separate answers as needed.)

55. The screen size of a television is determined by the length of the diagonal of the rectangular screen. Traditional TVs come in a 4:3 format, meaning the ratio of the length to width of the screen is 4 to 3.



What is the area of a 19-inch traditional TV screen? What is the area of a 19-inch LCD TV whose screen is in a 16:9 format? Which screen is larger?

The area of a 19-inch traditional TV is approximately square inches.
(Do not round until the final answer. Then round to one decimal place as needed.)

The area of a 19-inch LCD TV is approximately square inches.
(Do not round until the final answer. Then round to one decimal place as needed.)

Which TV has the larger screen area?

- LCD TV
- Traditional TV