Algebra 1 Final Exam Study Guide

Multiple Choice
*Identify the choice that best completes the statement or answers the question.*

1. Write an equation, in point-slope form, of the line that passes through the point \((-9, -3)\) and has the slope \(\frac{1}{2}\).
   a. \(y + 3 = \frac{1}{2}(x + 9)\)
   b. \(y + 9 = \frac{1}{2}(x + 3)\)
   c. \(y - 9 = \frac{1}{2}(x - 3)\)
   d. \(y - 3 = \frac{1}{2}(x - 9)\)

2. Write an equation in point-slope form of the line that passes through the points \((5, -1)\) and \((-6, -4)\).
   a. \(y - 5 = \frac{3}{11}(x + 1)\)
   b. \(y + 1 = \frac{11}{3}(x - 5)\)
   c. \(y - 5 = \frac{11}{3}(x + 1)\)
   d. \(y + 1 = \frac{3}{11}(x - 5)\)

3. Write an equation of the line that passes through \((-5, -3)\) and is parallel to the line \(y = x - 5\).
   a. \(y = -5x + 2\)
   b. \(y = x + 2\)
   c. \(y = x - 5\)
   d. \(y = -5x - 5\)

4. Write an equation of the line that goes through the point \((10, 8)\) and is perpendicular to the line \(y = 5x + 6\).
   a. \(y = \frac{1}{5}x + 10\)
   b. \(y = -5x - 58\)
   c. \(-\frac{1}{5}x + 10\)
   d. \(y = 5x - 42\)

5. What type of relationship is shown by the scatter plot?
   a. relatively no correlation
   b. weak negative correlation
   c. strong negative correlation
   d. strong positive correlation

6. Which equation matches the scatter plot?
   a. \(y = 2x + 3\)
   b. \(y = 2x - 3\)
   c. \(y = 3 - 2x\)
   d. \(y = 2 - 2x\)

7. Min is making home-made cards to send to friends and family and to sell at the local craft fair. This scatter plot shows the total number of cards he had made after each hour he worked on the task.
Using this information, what is the best prediction of the number of cards Min can make in 11 hours?

a. 24  
b. 34  
c. 59  
d. 44

8. Ramon is learning a foreign language. The scatter plot shows the total number of vocabulary words Ramon has learned at the end of each of his first eight days in class.

Assuming the trend shown by the scatter plot continues, which is the best prediction of the number of words Ramon will have learned by his 10th day in class?

a. 40  
b. 25  
c. 50  
d. 55

9. Solve the inequality. Then graph its solution.

\[ y + 2 \leq 1 \]

a. \[ y \leq 3 \]

b. \[ y \geq -1 \]

c. \[ y \leq -1 \]

d. \[ y \geq 3 \]

10. Solve the inequality. Then graph its solution.

\[ y + 6 \geq 3 \]

a. \[ y \leq -3 \]

b. \[ y \geq -3 \]

c. \[ y \leq 9 \]
Solve the inequality. Then identify the graph of the solution.

11. $-0.4x < -3.6$
   a. $x > 9$
   b. $x < -9$
   c. $x > -9$
   d. $x < 9$

12. $-12w \geq -18$
   a. $w \geq 1.5$
   b. $w > 1.5$
   c. $w < 1.5$

13. $-2(3p - 8) \leq -8$
   a. $p \geq 4$
   b. $p \leq -4$
   c. $p \leq 4$
   d. $p < 4$

14. On a road in the city of Rochester, the maximum speed is 45 kilometers per hour and the minimum speed is 30 kilometers per hour. If $x$ represents speed, which sentence best expresses this condition?
   a. $45 \geq x - 30$
   b. $45 \leq x \leq 30$
   c. $45 \geq x \leq 30$
   d. $45 \geq x \geq 30$

Solve.

15. $|x + 9| = 3$
a. The solutions are –6 and –12.
b. The solution is –12.
c. The solutions are 12 and 6.
d. The solution is 6.

16. Solve $|x - 4| \geq 4$ and graph your solution.
   a. 
   
   b. 
   
   c. 
   
   d. 

17. The Martinez family is going to the county fair. They have two ticket options as shown in the chart below.

<table>
<thead>
<tr>
<th>Ticket</th>
<th>Admission</th>
<th>Price Per</th>
</tr>
</thead>
<tbody>
<tr>
<td>Option</td>
<td>Price</td>
<td>Ride</td>
</tr>
<tr>
<td>A</td>
<td>$5</td>
<td>$0.50</td>
</tr>
<tr>
<td>B</td>
<td>$3</td>
<td>$0.90</td>
</tr>
</tbody>
</table>

   I. Write an equation that shows the cost per person for each option.
   II. Use graphing to solve the system of equations.
   III. Find the number of rides for which the total cost is the same with both ticket options.
   a. I. $C = 5 + 50r$
      II. $(0.05, 0.075)$
      III. 0.005 ride
   b. I. $C = 3 + 0.9r$
      II. $(0.05, 0.075)$
      III. 0.05 ride
   c. I. $C = 5 + 0.5r$
      II. $(5, 7.5)$
      III. 5 rides
   d. I. $C = 5 + 0.5r$
      II. $(5, 7.5)$
      III. 5 rides

18. Solve the system by substitution:

19. Solve by substitution:
   $2x + 5y = -3$
   $y = 4x - 5$
   a. $(1, -1)$
   b. no solution
   c. $(2, 3)$
   d. $(2, -\frac{7}{5})$

20. Solve by elimination:
   $5x + 7y = -8$
   $3x - 7y = -16$
   a. $(10, 7)$
   b. $(0, 8)$
   c. $(-3, 1)$
   d. no solution

21. Marc sold 542 tickets for the school play. Student tickets cost $4 and adult tickets cost $6. Marc’s sales totaled $2764. How many adult tickets and how many student tickets did Marc sell?
   a. 298 adult, 244 student
   b. 244 adult, 298 student
   c. 249 adult, 293 student
   d. 293 adult, 249 student

22. Which system of equations has no solution?
   a. $8x + 2y = 30$
   b. $8x + 8y = 120$
   c. $8x - 2y = 1$
   d. $5x - 5y = 21$
c. \( 8x - 2y = 1 \)
   \[-16x + 4y = 21 \]
d. \( 8x + 2y = 1 \)
   \[16x + 5y = 2 \]

Describe the solution(s) of the system.

23. \( 5x - 4y = 8 \)
   \( 20x - 16y = 3 \)
   a. no solution
   b. \((-3, \ -\frac{23}{4})\)
   c. \((2, \ 2)\)
   d. \((3, 7)\)

Simplify. Leave your answer in exponential form.

24. \( 6^1 \times 6^8 \)
   a. \(6^8\)
   b. \(6^7\)
   c. \(6^9\)
   d. \(36^9\)

Simplify:

25. \( w^6 \cdot w^7 \cdot w^4 \)
   a. \(w^{17}\)
   b. \(3w^{168}\)
   c. \(w^{17}\)
   d. \(3w^{17}\)

26. \( (w^5c^3)(-7w^7c^5) \)
   a. \(-7w^{12}c^8\)
   b. \(-7w^{13}c^5\)
   c. \(-7w^{12}c^4\)
   d. \(-7w^{13}c^4\)

Simplify the expression using positive exponents.

27. \( \left( \frac{q^6}{r^2} \right)^5 \)
   a. \(\frac{q^{30}}{r^2}\)
   b. \(\frac{q^{30}}{r^{10}} + r^{10}\)
   c. \(\frac{q^{11}}{r^7}\)
   d. \(\frac{q^{30}}{r^{10}}\)

Simplify:

28. \( a^{-7} \cdot a^4 \)
   a. \(\frac{1}{a^3}\)
   b. \(-3a\)
   c. \(\frac{1}{a^{-3}}\)
   d. \(a^{11}\)

29. \( 5^3 + 4 + 6^0 \)
   a. 500
   b. 135
   c. 3000
   d. 130

30. Write \( 4^0 \cdot 4^{-11} \) using positive exponents.
   a. \(4^0\)
   b. \(\frac{1}{4^{12}}\)
   c. \(\frac{1}{4^{11}}\)
   d. \(4^{11}\)

31. Write 11,504 in scientific notation.
   a. \(115.04 \times 10^2\)
   b. \(1.1504 \times 10^2\)
   c. \(1.1504 \times 10^5\)
   d. \(1.1504 \times 10^4\)

32. Write 0.00000389 in scientific notation.
   a. \(3.89 \times 10^{-6}\)
   b. \(0.389 \times 10^{-5}\)
c. 389 \times 10^{-7}

d. 389 \times 10^{-8}

**Multiply:**

33. \( \left(2.5 \times 10^{-9}\right) \left(6.6 \times 10^4\right)\)

a. 1.65 \times 10^{-5}
b. 16.5 \times 10^{-36}
c. 9.1 \times 10^{-5}
d. 16.5 \times 10^{-5}

34. In astronomy, the immense distances between celestial bodies are measured in light-years, the distance that light can travel in one year. One light-year is approximately 5,880,000,000,000 miles. If a star is 8.9 light-years from Earth, how would you correctly represent the number of miles the star is from Earth in scientific notation?

a. 52.3 \times 10^{12}
b. 5.9 \times 10^{12}
c. 5.4 \times 10^{13}
d. 5.2 \times 10^{13}

35. The amount of money, \(A\), accrued at the end of \(n\) years when a certain amount, \(P\), is invested at a compound annual rate, \(r\), is given by \(A = P(1 + r)^n\). If a person invests $110 in an account that pays 5% interest compounded annually, find the balance after 15 years.

a. $99000
b. $229
c. $660
d. $48,168

36. If there are initially 2500 bacteria in a culture, and the number of bacteria double each hour, the number of bacteria after \(t\) hours can be found using the formula \(N = 2500 \left(2^t\right)\). How long will it take the culture to grow to 75,000 bacteria?

a. 36.25 hr
b. 2.96 hr
c. 1.48 hr
d. 4.91 hr

**Graph the function.**

37. \(y = \left(\frac{1}{4}\right)^x\)

a. 

b. 

c. 

d. 

38. Find the degree of the polynomial \(3x^6 + x^5 + 3\).

a. 11
b. 1
c. 7

d. 6

39. Which expression is a polynomial?
   a. \(5p^2 - p + 4^p\)
   b. \(p - \frac{5}{4} + \frac{4}{p}\)
   c. \(\frac{1}{2}p^5 + \frac{p + 4}{3}\)
   d. \(\frac{4}{5}p^3 + \frac{5^4}{p}\)

   Find the product.

40. \((x - 5)(x + 2)\)
   a. \(x^2 - 3x + 10\)
   b. \(x^2 + 7x + 10\)
   c. \(x^2 + 7x - 10\)
   d. \(x^2 - 3x - 10\)

41. \((x + 8)(x^2 - 2x + 8)\)
   a. \(x^3 + 10x^2 - 24x + 64\)
   b. \(x^3 + 6x^2 - 24x + 64\)
   c. \(x^3 + 6x^2 - 8x + 64\)
   d. \(x^3 + 10x^2 - 8x + 64\)

   Find the product.

42. \((6x^2 - 2)^2\)
   a. \(36x^4 - 4\)
   b. \(36x^4 - 24x^2 + 4\)
   c. \(36x^4 - 24x^2 - 4\)
   d. \(36x^2 - 12x + 4\)

43. \((3c + 8)(3c - 8)\)
   a. \(9c^2 + 48c + 64\)
   b. \(9c^2 + 64\)
   c. \(9c^2 - 64\)
   d. \(9c^2 + 48c - 64\)

44. \((8v + 7)(8v - 7)\)
   a. \(64v^2 - 49\)
   b. \(64v^2 + 112v - 49\)
   c. \(64v^2 + 49\)

   Solve the equation.

45. \(x^2 - 15x + 54\)
   a. \((x+ 6)(x - 9)\)
   b. \((x- 6)(x- 9)\)
   c. \((x - 6)(x+ 9)\)
   d. \((x+ 6)(x+ 9)\)

   Graph:

46. \(25b^2 + 80b + 64 = 0\)
   a. \(b = \frac{5}{8}\)
   b. \(b = -\frac{5}{8}\)
   c. \(b = -\frac{5}{8}\)
   d. \(b = \frac{8}{5}\)
48. How would you change the graph of \( y = x^2 \) to produce the graph of \( y = x^2 - 6 \)?
   a. shift the graph of \( y = x^2 \) left 6 units
   b. shift the graph of \( y = x^2 \) up 6 units
   c. shift the graph of \( y = x^2 \) down 6 units
   d. shift the graph of \( y = x^2 \) right 6 units

Graph:

49. \( y = 2x^2 - 4x + 2 \)
   a. 
   b. 

Solve the equation.

50. \( 16x^2 - 81 = 0 \)
   a. \( \frac{-16}{81}, \frac{16}{81} \)
   b. \( \frac{9}{4}, \frac{9}{4} \)
   c. \( \frac{-81}{16}, \frac{81}{16} \)
   d. \( \frac{4}{9}, \frac{4}{9} \)

Solve the equation by completing the square.

51. \( 4x^2 + 8x - 3 = 0 \)
   a. \( \frac{-2 \pm \sqrt{7}}{2} \)
   b. \( \frac{2 \pm \sqrt{7}}{2} \)
   c. \( \frac{-2 \pm 2\sqrt{7}}{2} \)
   d. \( 2 \pm \sqrt{7} \)

Solve the quadratic equation.

52. \( x^2 + 6x + 3 = 0 \)
53. The table gives the number of inner tubes, \( I \), sold in a bike shop between 1985 and 1990. Determine which model best fits the data.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Inner tubes, ( I )</td>
<td>16</td>
<td>36</td>
<td>67</td>
<td>130</td>
<td>261</td>
<td>513</td>
</tr>
</tbody>
</table>

a. absolute value  
b. exponential  
c. linear  
d. quadratic

54. A salesperson earns a monthly salary of $700 a month plus a percentage of the proceeds from the number of items he sells. Which graph could be a model of this situation?

\[
\sqrt{30} \cdot \sqrt{10} \\
\frac{10\sqrt{3}}{\sqrt{300}} \\
5\sqrt{6} \\
10\sqrt{6}
\]

a.  
b.  
c.  
d.  

Solve:

56. \( \sqrt{x - 5} - 4 = 7 \)

a.  
b.  
c.  
d.  

57. \( \sqrt{4x - 3} = 4 \)

a.  
b.  
c.  
d.  

58. John and Fred decided to take a shortcut through the woods to go to their friend's house. When they went home they decided to take the long way around the woods to avoid getting blackberry vine scratches. If the length of the shortcut is equal to the square root of the sum of the squares of the other two sides, what total distance did they walk?
59. To get to the store from his house, Jack biked 5 kilometers due west and then 12 kilometers due north. On the way back he cut across a field, taking the shortest possible route home.

How far did Jack bike on the round-trip?

a. 34 km
b. 13 km
c. 17 km
d. 30 km

60. Find an equation of variation when $y$ varies inversely with $x$ and $y = 3$ when $x = 8$.

a. $y = \frac{8}{3}x$
b. $y = \frac{3}{8}x$
c. $y = \frac{x}{24}$
d. $y = \frac{24}{x}$

Short Answer
Solve and graph.

1. $-8x + 7 > -25$

   Solve.

2. $|x - 4| = 3$

   Solve by elimination:

3. $6x - 4y = -14$

   $x + 4y = 7$

   Simplify the expression using positive exponents.

4. $\frac{2^{20}}{2^4}$

   Factor the polynomial.

6. $x^2 - 10x + 24$

   Solve the equation.

7. $16b^2 + 144b + 324 = 0$

   Graph:

8. $y = 4x^2 + 3x - 3$
10. \( x^2 - 8x + 11 = 0 \)

**Determine the number of solutions of the equation.**

11. \( 4x^2 - 2x = -5 \)

12. \( 2x^2 - 8x + 5 = 0 \)

13. Write the standard form of the equation of the line with slope –4 passing through the point \((6, -4)\).

14. Write an equation of the line with undefined slope that passes through the point \((0, -2)\).

15. The width, \( w \), of a piece of wood ranges from 74 mm to 83 mm. Write and graph an inequality to describe this interval. Does this graph represent a discrete or continuous data set?

16. Solve \(|x + 1| < 5\) and graph your solution.

17. Write as a fraction and simplify: \(3^{-4}\)

**Graph the function.**

18. \( y = 5^x \)

19. Graph the function and label as exponential growth or decay. \( y = 2(2)^x \)

20. Solve the equation \((x - 9)(x - 6) = 0\).

21. Solve the equation \((x - 2)(x + 5) = 0\).

**Solve the equation.**

22. \( x^2 - 3x - 54 = 0 \)

**Factor the trinomial.**

23. \( 3x^2 - 10x + 8 \)
24. $8x^2 + 6x - 5$

Solve the equation.

25. $x^3 - 8x^2 - 9x = 0$

26. $x^3 - x^2 - 6x = 0$

Solve the equation by graphing.

27. $x^2 - 4x + 3 = 0$

28. $\sqrt{245}$

29. The price per person of renting a bus varies inversely with the number of people renting the bus. It costs $17 per person if 76 people rent the bus. How much will it cost per person if 57 people rent the bus?

30. Find the domain and range of the function $f(x) = \frac{1}{x - 4}$.

31. Graph the radical function $y = \sqrt{x + 1}$ and then find the domain and range.

32. The endpoints of a diameter of a circle are $C(-13, -5)$ and $D(-3, 0)$. What is the $y$-coordinate of the center of the circle?

33. $\frac{7y^2}{5} \cdot \frac{20}{8y}$

Simplify:

34. $\frac{-2x + 2x^2}{-18x + 18}$

Divide:

35. $\frac{x^2 + 8x + 3}{x}$

36. A rocket is launched from atop a 33 foot cliff with an initial vertical velocity of 149 feet per second. The height of the rocket $t$ seconds after launch is given by the equation $h = -16t^2 + 149t + 33$. Graph the equation to find out how long after the rocket is launched it will hit the ground. Estimate your answer to the nearest tenth of a second.

Solve the equation by completing the square.

37. $x^2 + 6x - 16 = 0$

38. Find the midpoint of $\overline{JK}$. 
39. Write the polynomial so that the exponents decrease from left to right.

\[8x^5 - 8x + 5x^6 - 3\]

Essay

1. **SHORT RESPONSE**  Write your answer on a separate piece of paper.

Between them, Brian and Leslie drove a total of 585 miles in 12 hours. Brian drove the first part of the trip and averaged 60 miles per hour. Leslie drove the remainder of the trip and averaged 45 miles per hour.

*Part A* Write a system of two equations that could be used to find the length of time each person drove. Let \(x\) represent the length of time Brian drove and let \(y\) represent the length of time Leslie drove.

*Part B* Solve the system of equations for \(x\) and \(y\) to determine how many hours each person drove. Show your work.
Algebra 1 Final Exam Study Guide
Answer Section

MULTIPLE CHOICE

1. ANS: A PTS: 1 DIF: Level A REF: MALG0773
   STA: FL.FLSSS.MTH.07.9-12.MA.912.A.3.10
   TOP: Lesson 5.3 Write Linear Equations in Point-Slope Form
   KEY: equation | slope | intercept | point-slope
   BLM: Comprehension
   NOT: 978-0-618-65612-7

2. ANS: D PTS: 1 DIF: Level B REF: MALG0777
   STA: FL.FLSSS.MTH.07.9-12.MA.912.A.3.10
   TOP: Lesson 5.3 Write Linear Equations in Point-Slope Form
   KEY: line | equation | point-slope
   BLM: Comprehension
   NOT: 978-0-618-65612-7

3. ANS: B PTS: 1 DIF: Level B REF: MALG0808
   STA: FL.FLSSS.MTH.07.9-12.MA.912.A.3.10
   TOP: Lesson 5.5 Write Equations of Parallel and Perpendicular Lines
   KEY: line | point | equation | slope | parallel
   BLM: Comprehension
   NOT: 978-0-618-65612-7

4. ANS: C PTS: 1 DIF: Level B REF: MALG0812
   STA: FL.FLSSS.MTH.07.9-12.MA.912.A.3.10
   TOP: Lesson 5.5 Write Equations of Parallel and Perpendicular Lines
   KEY: line | point | equation | slope | perpendicular
   BLM: Comprehension
   NOT: 978-0-618-65612-7

5. ANS: D PTS: 1 DIF: Level A REF: MALG0821
   STA: FL.FLSSS.MTH.07.9-12.MA.912.S.3.1.7
   TOP: Lesson 5.6 Fit a Line to Data
   KEY: scatter plot
   BLM: Knowledge
   NOT: 978-0-618-65612-7

6. ANS: A PTS: 1 DIF: Level B REF: MALG0836
   TOP: Lesson 5.6 Fit a Line to Data
   KEY: scatter plot
   BLM: Knowledge
   NOT: 978-0-618-65612-7

7. ANS: D PTS: 1 DIF: Level A REF: MALG0852
   STA: FL.FLSSS.MTH.07.9-12.MA.912.A.3.11 | FL.FLSSS.MTH.07.9-12.MA.912.S.5.8
   TOP: Lesson 5.7 Predict with Linear Models
   KEY: graph | estimate | scatter plot | predict
   BLM: Knowledge
   NOT: 978-0-618-65612-7

8. ANS: A PTS: 1 DIF: Level A REF: MALG0855
   STA: FL.FLSSS.MTH.07.9-12.MA.912.A.3.11 | FL.FLSSS.MTH.07.9-12.MA.912.S.5.8
   TOP: Lesson 5.7 Predict with Linear Models
   KEY: graph | estimate | scatter plot | predict
   BLM: Knowledge
   NOT: 978-0-618-65612-7

9. ANS: C PTS: 1 DIF: Level B REF: MALG0862
   STA: FL.FLSSS.MTH.07.9-12.MA.912.A.3.4
   TOP: Lesson 6.1 Solve Inequalities Using Addition and Subtraction
   KEY: graph | subtract | one-step | inequality | solve | integer
   BLM: Knowledge
   NOT: 978-0-618-65612-7

10. ANS: B PTS: 1 DIF: Level B REF: MALG0863


Name: ____________________________ Date: ____________________________ Per: ___

STA: FL.FLSSS.MTH.07.9-12.MA.912.A.3.4
TOP: Lesson 6.1 Solve Inequalities Using Addition and Subtraction
KEY: inequality | solve | integer | graph | subtract | one-step
BLM: Knowledge
NOT: 978-0-618-65612-7
11. ANS: A PTS: 1 DIF: Level B REF: MALG0871

STA: FL.FLSSS.MTH.07.9-12.MA.912.A.3.4
TOP: Lesson 6.2 Solve Inequalities Using Multiplication and Division
KEY: inequality | solve | integer | graph | divide | one-step
BLM: Knowledge
NOT: 978-0-618-65612-7
12. ANS: D PTS: 1 DIF: Level B REF: MALG0873

STA: FL.FLSSS.MTH.07.9-12.MA.912.A.3.4
TOP: Lesson 6.3 Solve Multi-Step Inequalities
KEY: graph | inequality
BLM: Knowledge
NOT: 978-0-618-65612-7
13. ANS: A PTS: 1 DIF: Level B REF: MALG0889

STA: FL.FLSSS.MTH.07.9-12.MA.912.A.3.4 | FL.FLSSS.MTH.07.9-12.MA.912.A.3.5
TOP: Lesson 6.4 Solve Compound Inequalities
KEY: absolute value | equation
BLM: Application
NOT: 978-0-618-65612-7
14. ANS: D PTS: 1 DIF: Level B REF: MALG0912

STA: FL.FLSSS.MTH.07.9-12.MA.912.A.3.6
TOP: Lesson 6.5 Solve Absolute Value Equations
KEY: absolute value | equation
BLM: Knowledge
NOT: 978-0-618-65612-7
15. ANS: A PTS: 1 DIF: Level B REF: MALG0939

STA: FL.FLSSS.MTH.07.9-12.MA.912.A.3.6
TOP: Lesson 6.6 Solve Absolute Value Inequalities
KEY: graph | absolute value | inequality
BLM: Knowledge
NOT: 978-0-618-65612-7
16. ANS: A PTS: 1 DIF: Level B REF: MALG0953

TOP: Lesson 7.1 Solve Linear Systems by Graphing
KEY: linear | word | system
BLM: Application
NOT: 978-0-618-65612-7
17. ANS: C PTS: 1 DIF: Level A REF: MALG1010

STA: FL.FLSSS.MTH.07.9-12.MA.912.A.3.14
TOP: Lesson 7.2 Solve Linear Systems by Substitution
KEY: substitution | variable-2 | linear | solve system
BLM: Knowledge
NOT: 978-0-618-65612-7
18. ANS: A PTS: 1 DIF: Level B REF: MALG1012

STA: FL.FLSSS.MTH.07.9-12.MA.912.A.3.14
TOP: Lesson 7.2 Solve Linear Systems by Substitution
KEY: substitution | two variables | linear | solve system
BLM: Knowledge
NOT: 978-0-618-65612-7
19. ANS: C PTS: 1 DIF: Level A REF: MALG1032

STA: FL.FLSSS.MTH.07.9-12.MA.912.A.3.14
TOP: Lesson 7.3 Solve Linear Systems by Adding or Subtracting
KEY: solve | equation | system | linear | unique
BLM: Knowledge
NOT: 978-0-618-65612-7
20. ANS: A PTS: 1 DIF: Level B REF: MALG1047

STA: FL.FLSSS.MTH.07.9-12.MA.912.A.3.14
TOP: Lesson 7.3 Solve Linear Systems by Adding or Subtracting
KEY: solve | equation | system | linear | unique
BLM: Knowledge
NOT: 978-0-618-65612-7
21. ANS: A PTS: 1 DIF: Level B REF: MALG1047
TOP: Lesson 7.4 Solve Linear Systems by Multiplying First

NOT: 978-0-618-65612-7

ANS: C  PTS: 1  DIF: Level B  REF: MALG1057

TOP: Lesson 7.5 Solve Special Types of Linear Systems

NOT: 978-0-618-65612-7

ANS: A  PTS: 1  DIF: Level B  REF: MALG1063

TOP: Lesson 8.1 Apply Exponent Properties Involving Products

NOT: 978-0-618-65612-7

ANS: B  PTS: 1  DIF: Level B  REF: MALG1098

TOP: Lesson 8.2 Apply Exponent Properties Involving Quotients

NOT: 978-0-618-65612-7

ANS: D  PTS: 1  DIF: Level B  REF: MALG1127

TOP: Lesson 8.3 Define and Use Zero and Negative Exponents

NOT: 978-0-618-65612-7

ANS: A  PTS: 1  DIF: Level A  REF: MALG1134

TOP: Lesson 8.4 Use Scientific Notation

NOT: 978-0-618-65612-7

ANS: A  PTS: 1  DIF: Level A  REF: MALG1131

TOP: Lesson 8.4 Use Scientific Notation

NOT: 978-0-618-65612-7

ANS: D  PTS: 1  DIF: Level A  REF: MALG1158

TOP: Lesson 8.4 Use Scientific Notation

NOT: 978-0-618-65612-7

ANS: A  PTS: 1  DIF: Level A  REF: MALG1160

TOP: Lesson 8.4 Use Scientific Notation

NOT: 978-0-618-65612-7

ANS: D  PTS: 1  DIF: Level B  REF: MALG1174
Lesson 9.7 Factor Special Products

<table>
<thead>
<tr>
<th>Trinomial</th>
<th>Binomial</th>
<th>Multiply</th>
<th>Difference of Two Squares</th>
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</thead>
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<td>/FL.FLSSS.MTH.07.9-12.MA.912.A.1.1</td>
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<tr>
<td>TOP: Lesson 8.4 Use Scientific Notation</td>
<td>KEY: word</td>
<td>scientific notation</td>
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<tr>
<td>BLM: Application</td>
<td>NOT: 978-0-618-65612-7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

34. ANS: D  PTS: 1  DIF: Level B  REF: MALG1178
STA: /FL.FLSSS.MTH.07.9-12.MA.912.A.1.1 | /FL.FLSSS.MTH.07.9-12.MA.912.T.1.8 |
TOP: Lesson 8.4 Use Scientific Notation  KEY: word | scientific notation |
BLM: Application  NOT: 978-0-618-65612-7

35. ANS: B  PTS: 1  DIF: Level B  REF: MAL21007
TOP: Lesson 8.5 Write and Graph Exponential Growth Functions  KEY: word | log | compound interest |
BLM: Application  NOT: 978-0-618-65612-7

36. ANS: D  PTS: 1  DIF: Level B  REF: MALG1206
TOP: Lesson 8.5 Write and Graph Exponential Growth Functions  KEY: word | exponential growth |
BLM: Application  NOT: 978-0-618-65612-7

37. ANS: D  PTS: 1  DIF: Level B  REF: MALG1206
TOP: Lesson 8.6 Write and Graph Exponential Decay Functions  KEY: graph | exponential | function |
BLM: Knowledge  NOT: 978-0-618-65612-7

38. ANS: D  PTS: 1  DIF: Level B  REF: MALG1221
TOP: Lesson 9.1 Add and Subtract Polynomials  KEY: polynomial | degree |
BLM: Comprehension  NOT: 978-0-618-65612-7

39. ANS: C  PTS: 1  DIF: Level A  REF: MALG1232
TOP: Lesson 9.1 Add and Subtract Polynomials  KEY: polynomial | identify |
BLM: Comprehension  NOT: 978-0-618-65612-7

40. ANS: D  PTS: 1  DIF: Level B  REF: MALG1259
STA: /FL.FLSSS.MTH.07.9-12.MA.912.A.4.2 |
TOP: Lesson 9.2 Multiply Polynomials  KEY: trinomial | binomial | multiply |
BLM: Comprehension  NOT: 978-0-618-65612-7

41. ANS: C  PTS: 1  DIF: Level B  REF: MALG1267
STA: /FL.FLSSS.MTH.07.9-12.MA.912.A.3.2 | /FL.FLSSS.MTH.07.9-12.MA.912.A.4.2 |
TOP: Lesson 9.2 Multiply Polynomials  KEY: trinomial | binomial | multiply |
BLM: Comprehension  NOT: 978-0-618-65612-7

42. ANS: B  PTS: 1  DIF: Level A  REF: MALG1285
TOP: Lesson 9.3 Find Special Products of Polynomials  KEY: square | binomial |
BLM: Knowledge  NOT: 978-0-618-65612-7

43. ANS: C  PTS: 1  DIF: Level A  REF: MALG1291
STA: /FL.FLSSS.MTH.07.9-12.MA.912.A.4.2 |
TOP: Lesson 9.3 Find Special Products of Polynomials  KEY: trinomial | multiply | foil | difference of two squares |
BLM: Knowledge  NOT: 978-0-618-65612-7

44. ANS: A  PTS: 1  DIF: Level A  REF: MALG1296
STA: /FL.FLSSS.MTH.07.9-12.MA.912.A.4.2 |
TOP: Lesson 9.3 Find Special Products of Polynomials  KEY: trinomial | multiply | difference of two squares |
BLM: Knowledge  NOT: 978-0-618-65612-7

45. ANS: B  PTS: 1  DIF: Level A  REF: MALG1317
STA: /FL.FLSSS.MTH.07.9-12.MA.912.A.4.3 |
TOP: Lesson 9.5 Factor x^2 + bx + c  KEY: trinomial | binomial | factor |
BLM: Knowledge  NOT: 978-0-618-65612-7

46. ANS: C  PTS: 1  DIF: Level B  REF: MALG1335
STA: /FL.FLSSS.MTH.07.9-12.MA.912.A.7.3 |
TOP: Lesson 9.7 Factor Special Products  KEY: perfect square trinomial | equation |
BLM: Application NOT: 978-0-618-65612-7

47. ANS: D PTS: 1 DIF: Level B REF: MALG1360
   STA: FL.FLSSS.MTH.07.9-12.MA.912.A.2.6 | FL.FLSSS.MTH.07.9-12.MA.912.A.7.1
   TOP: Lesson 10.1 Graph y = ax^2 + c KEY: quadratic | graph
   BLM: Comprehension NOT: 978-0-618-65612-7

48. ANS: C PTS: 1 DIF: Level B REF: MALG1361
   TOP: Lesson 10.1 Graph y = ax^2 + c KEY: parabola | translation
   BLM: Comprehension NOT: 978-0-618-65612-7

49. ANS: A PTS: 1 DIF: Level A REF: MALG1371
   STA: FL.FLSSS.MTH.07.9-12.MA.912.A.2.6 | FL.FLSSS.MTH.07.9-12.MA.912.A.7.1
   TOP: Lesson 10.2 Graph y = ax^2 + bx + c KEY: graph | quadratic
   BLM: Comprehension NOT: 978-0-618-65612-7

50. ANS: B PTS: 1 DIF: Level B REF: MALG1401
   TOP: Lesson 10.4 Use Square Roots to Solve Quadratic Equations
   KEY: solve | quadratic | square BLM: Comprehension
   NOT: 978-0-618-65612-7

51. ANS: A PTS: 1 DIF: Level B REF: MALG1419
   STA: FL.FLSSS.MTH.07.9-12.MA.912.A.7.3
   TOP: Lesson 10.5 Solve Quadratic Equations by Completing the Square
   KEY: solve | quadratic | completing the square BLM: Comprehension
   NOT: 978-0-618-65612-7

52. ANS: C PTS: 1 DIF: Level A REF: MALG1424
   STA: FL.FLSSS.MTH.07.9-12.MA.912.A.7.2
   TOP: Lesson 10.6 Solve Quadratic Equations by the Quadratic Formula
   KEY: solve | equation | quadratic | formula BLM: Knowledge
   NOT: 978-0-618-65612-7

53. ANS: B PTS: 1 DIF: Level B REF: MALG1454
   STA: FL.FLSSS.MTH.07.9-12.MA.912.A.8.1
   TOP: Lesson 10.8 Compare Linear, Exponential, and Quadratic Models
   KEY: function | table BLM: Comprehension
   NOT: 978-0-618-65612-7

54. ANS: B PTS: 1 DIF: Level B REF: MALG1457
   TOP: Lesson 10.8 Compare Linear, Exponential, and Quadratic Models
   KEY: linear | compare | graph BLM: Application NOT: 978-0-618-65612-7

55. ANS: A PTS: 1 DIF: Level B REF: MALG1479
   STA: FL.FLSSS.MTH.07.9-12.MA.912.A.6.2
   TOP: Lesson 11.2 Simplify Radical Expressions
   KEY: radical | multiply | simplify BLM: Application NOT: 978-0-618-65612-7

56. ANS: B PTS: 1 DIF: Level B REF: MALG1510
   STA: FL.FLSSS.MTH.07.9-12.MA.912.A.6.1
   TOP: Lesson 11.3 Solve Radical Equations
   KEY: solve | equation | radical BLM: Application NOT: 978-0-618-65612-7

57. ANS: C PTS: 1 DIF: Level A REF: MALG1512
   STA: FL.FLSSS.MTH.07.9-12.MA.912.A.6.1
   TOP: Lesson 11.3 Solve Radical Equations
   KEY: solve | equation | radical BLM: Application NOT: 978-0-618-65612-7

58. ANS: B PTS: 1 DIF: Level B REF: MALG1527
   STA: FL.FLSSS.MTH.07.9-12.MA.912.G.5.1 | FL.FLSSS.MTH.07.9-12.MA.912.G.5.4 | FL.FLSSS.MTH.07.9-12.MA.912.T.1.8
   TOP: Lesson 11.4 Apply the Pythagorean Theorem and Its Converse
   KEY: real-life | Pythagorean Theorem BLM: Application NOT: 978-0-618-65612-7
59. **ANS:** D  **PTS:** 1  **DIF:** Level A  **REF:** MALG1528  
**STA:** FL.FLSSS.MTH.07.9-12.MA.912.G.2.5 | FL.FLSSS.MTH.07.9-12.MA.912.G.5.1 | FL.FLSSS.MTH.07.9-12.MA.912.G.5.4 | FL.FLSSS.MTH.07.9-12.MA.912.T.1.8  
**TOP:** Lesson 11.4 Apply the Pythagorean Theorem and Its Converse  
**KEY:** Pythagorean Theorem | real-life  
**BLM:** Application  
**NOT:** 978-0-618-65612-7

60. **ANS:** D  **PTS:** 1  **DIF:** Level B  **REF:** MALG1564  
**STA:** FL.FLSSS.MTH.07.9-12.MA.912.A.2.12  
**TOP:** Lesson 12.1 Model Inverse Variation  
**KEY:** inverse variation | equation  
**BLM:** Comprehension  
**NOT:** 978-0-618-65612-7

**SHORT ANSWER**

1. **ANS:**
   
   $n < 4$

   ![Graph](image)

   **PTS:** 1  **DIF:** Level B  **REF:** MALG0886  
   **STA:** FL.FLSSS.MTH.07.9-12.MA.912.A.3.4 | FL.FLSSS.MTH.07.9-12.MA.912.A.3.5  
   **TOP:** Lesson 6.3 Solve Multi-Step Inequalities  
   **KEY:** inequality | graph  
   **BLM:** Knowledge  
   **NOT:** 978-0-618-65612-7

2. **ANS:**
   
   1, 7

   **PTS:** 1  **DIF:** Level B  **REF:** MALG0938  
   **STA:** FL.FLSSS.MTH.07.9-12.MA.912.A.3.6  
   **TOP:** Lesson 6.5 Solve Absolute Value Equations  
   **KEY:** equation | absolute value  
   **BLM:** Knowledge  
   **NOT:** 978-0-618-65612-7

3. **ANS:**
   
   $(-1, 2)$

   **PTS:** 1  **DIF:** Level A  **REF:** MALG1031  
   **STA:** FL.FLSSS.MTH.07.9-12.MA.912.A.3.14  
   **TOP:** Lesson 7.3 Solve Linear Systems by Adding or Subtracting  
   **KEY:** linear | unique | solve | equation | system  
   **BLM:** Knowledge  
   **NOT:** 978-0-618-65612-7

4. **ANS:**
   
   $2^{16}$

   **PTS:** 1  **DIF:** Level A  **REF:** MALG1121  
   **STA:** FL.FLSSS.MTH.07.9-12.MA.912.A.1.1 | FL.FLSSS.MTH.07.9-12.MA.912.A.1.3  
   **TOP:** Lesson 8.2 Apply Exponent Properties Involving Quotients  
   **KEY:** divide | exponents  
   **BLM:** Knowledge  
   **NOT:** 978-0-618-65612-7

5. **ANS:**
   
   $3^4$

   **PTS:** 1  **DIF:** Level A  **REF:** MALG1122  
   **STA:** FL.FLSSS.MTH.07.9-12.MA.912.A.1.1 | FL.FLSSS.MTH.07.9-12.MA.912.A.1.3
TOP: Lesson 8.2 Apply Exponent Properties Involving Quotients  
KEY: exponents | divide  
BLM: Knowledge  
NOT: 978-0-618-65612-7

6. ANS: 
\((x-4)(x-6)\)

PTS: 1  
DIF: Level A  
REF: MALG1316  
STA: FL.FLSSS.MTH.07.9-12.MA.912.A.4.3

TOP: Lesson 9.5 Factor x² + bx + c  
KEY: binomial | factor | trinomial

BLM: Knowledge  
NOT: 978-0-618-65612-7

7. ANS: 
\(b = \frac{9}{2}\)

PTS: 1  
DIF: Level B  
REF: MALG1334

STA: FL.FLSSS.MTH.07.9-12.MA.912.A.7.2 | FL.FLSSS.MTH.07.9-12.MA.912.A.7.3

TOP: Lesson 9.7 Factor Special Products  
KEY: factor | perfect square trinomial

BLM: Application  
NOT: 978-0-618-65612-7

8. ANS: 

![Graph of a parabola with x and y axes labeled, vertex at (10, 0), and points at (0, 10) and (10, 0) drawn]  

PTS: 1  
DIF: Level B  
REF: MALG1370

STA: FL.FLSSS.MTH.07.9-12.MA.912.A.2.6 | FL.FLSSS.MTH.07.9-12.MA.912.A.7.1

TOP: Lesson 10.2 Graph y = ax² + bx + c  
KEY: quadratic | graph | parabola

BLM: Comprehension  
NOT: 978-0-618-65612-7

9. ANS: 
\(-3, 3\)

PTS: 1  
DIF: Level A  
REF: MALG1394  
STA: FL.FLSSS.MTH.07.9-12.MA.912.A.1.1

TOP: Lesson 10.4 Use Square Roots to Solve Quadratic Equations

KEY: solve | quadratic | square | square root

BLM: Knowledge  
NOT: 978-0-618-65612-7

10. ANS: 
\(4 + \sqrt{5}, 4 - \sqrt{5}\)

PTS: 1  
DIF: Level B  
REF: MALG1423  
STA: FL.FLSSS.MTH.07.9-12.MA.912.A.7.2

TOP: Lesson 10.6 Solve Quadratic Equations by the Quadratic Formula

KEY: solve | equation | quadratic | formula

BLM: Knowledge  
NOT: 978-0-618-65612-7

11. ANS: 

20
0

PTS: 1  DIF: Level B  REF: MALG1439  STA: FL.FLSSS.MTH.07.9-12.MA.912.A.7.4
TOP: Lesson 10.7 Interpret the Discriminant
KEY: equation | solution | quadratic | discriminant
NOT: 978-0-618-65612-7
12. ANS:
2

PTS: 1  DIF: Level B  REF: MALG1440  STA: FL.FLSSS.MTH.07.9-12.MA.912.A.7.4
TOP: Lesson 10.7 Interpret the Discriminant
KEY: equation | solution | quadratic | discriminant
NOT: 978-0-618-65612-7
13. ANS:

\[4x + y = 20\]

TOP: Lesson 5.4 Write Linear Equations in Standard Form
KEY: linear | standard form | point | equation | slope
NOT: 978-0-618-65612-7
14. ANS:
\[x = 0\]

PTS: 1  DIF: Level B  REF: MALG0796  STA: FL.FLSSS.MTH.07.9-12.MA.912.A.3.4
TOP: Lesson 5.4 Write Linear Equations in Standard Form
KEY: equation | slope | point | vertical line
NOT: 978-0-618-65612-7
15. ANS:
\[74 \leq w \leq 83;\]

continuous

PTS: 1  DIF: Level B  REF: MALG0913  STA: FL.FLSSS.MTH.07.9-12.MA.912.A.3.4
TOP: Lesson 6.4 Solve Compound Inequalities
KEY: graph | continuous | write | inequality | word | discrete
NOT: 978-0-618-65612-7
16. ANS:

PTS: 1  DIF: Level B  REF: MALG0952  STA: FL.FLSSS.MTH.07.9-12.MA.912.A.3.6
TOP: Lesson 6.6 Solve Absolute Value Inequalities
KEY: inequality | graph | absolute value
NOT: 978-0-618-65612-7
17. ANS: \(\frac{1}{81}\)

PTS: 1  DIF: Level A  REF: MALG1129  STA: FL.FLSSS.MTH.07.9-12.MA.912.A.1.1
TOP: Lesson 8.3 Define and Use Zero and Negative Exponents
KEY: evaluate | exponent | negative | digit-1
BLM: Knowledge

18. ANS:

```
\begin{tikzpicture}
  \begin{axis}[
    axis lines=middle,
    grid=both,
    xlabel={x},
    ylabel={y},
    xmin=-10, xmax=10,
    ymin=-5, ymax=16,
    xtick={-10,-9,...,10},
    ytick={-5,0,...,16},
  ]
    \addplot[mark=none] coordinates {
      (-10, 16)
      (-9, 15)
      (-8, 14)
      (-7, 13)
      (-6, 12)
      (-5, 11)
      (-4, 10)
      (-3, 9)
      (-2, 8)
      (-1, 7)
      (0, 6)
      (1, 5)
      (2, 4)
      (3, 3)
      (4, 2)
      (5, 1)
      (6, 0)
      (7, -1)
      (8, -2)
      (9, -3)
      (10, -4)
    };
  \end{axis}
\end{tikzpicture}
```

PTS: 1  DIF: Level B  REF: MALG1201
STA: FL.FLSSS.MTH.07.9-12.MA.912.A.2.6 | FL.FLSSS.MTH.07.9-12.MA.912.A.8.3
TOP: Lesson 8.5 Write and Graph Exponential Growth Functions
KEY: graph | exponential
BLM: Knowledge
NOT: 978-0-618-65612-7

19. ANS:

```
\begin{tikzpicture}
  \begin{axis}[
    axis lines=middle,
    grid=both,
    xlabel={x},
    ylabel={y},
    xmin=-5, xmax=5,
    ymin=-5, ymax=5,
    xtick={-5,-4,...,5},
    ytick={-5,-4,...,5},
  ]
    \addplot[mark=none] coordinates {
      (-5, 0)
      (-4, 1)
      (-3, 2)
      (-2, 3)
      (-1, 4)
      (0, 5)
      (1, 4)
      (2, 3)
      (3, 2)
      (4, 1)
      (5, 0)
    };
  \end{axis}
\end{tikzpicture}
```

exponential growth

PTS: 1  DIF: Level B  REF: MALG1208
TOP: Lesson 8.6 Write and Graph Exponential Decay Functions
KEY: graph | exponential | growth | decay
BLM: Comprehension
NOT: 978-0-618-65612-7

20. ANS:

9, 6

PTS: 1  DIF: Level A  REF: MALG1300  STA: FL.FLSSS.MTH.07.9-12.MA.912.A.1.8
TOP: Lesson 9.4 Solve Polynomial Equations in Factored Form  
KEY: quadratic equations  
BLM: Knowledge  
NOT: 978-0-618-65612-7

21. ANS: 2, -5

PTS: 1  
DIF: Level A  
REF: MALG1301  
STA: FL.FLSSS.MTH.07.9-12.MA.912.A.1.8

TOP: Lesson 9.4 Solve Polynomial Equations in Factored Form  
KEY: quadratic equations  
BLM: Knowledge  
NOT: 978-0-618-65612-7

22. ANS: -6, 9

PTS: 1  
DIF: Level B  
REF: MALG1321  
STA: FL.FLSSS.MTH.07.9-12.MA.912.A.1.8

TOP: Lesson 9.5 Factor x^2 + bx + c  
KEY: solve | equation | quadratic | factor  
BLM: Comprehension  
NOT: 978-0-618-65612-7

23. ANS: (3x-4)(x-2)

PTS: 1  
DIF: Level A  
REF: MALG1326  
STA: FL.FLSSS.MTH.07.9-12.MA.912.A.4.3

TOP: Lesson 9.6 Factor ax^2 + bx + c  
KEY: quadratic | trinomial | polynomial | factor  
BLM: Knowledge  
NOT: 978-0-618-65612-7

24. ANS: (4x+5)(2x-1)

PTS: 1  
DIF: Level A  
REF: MALG1328  
STA: FL.FLSSS.MTH.07.9-12.MA.912.A.4.3

TOP: Lesson 9.6 Factor ax^2 + bx + c  
KEY: trinomial | quadratic | factor  
BLM: Knowledge  
NOT: 978-0-618-65612-7

25. ANS: -1, 0, 9

PTS: 1  
DIF: Level A  
REF: MALG1342  
STA: FL.FLSSS.MTH.07.9-12.MA.912.A.1.8 | FL.FLSSS.MTH.07.9-12.MA.912.A.4.6 | FL.FLSSS.MTH.07.9-12.MA.912.A.4.9

TOP: Lesson 9.8 Factor Polynomials Completely  
KEY: factor | solve | equation | cubic equation  
BLM: Comprehension  
NOT: 978-0-618-65612-7

26. ANS: -2, 0, 3

PTS: 1  
DIF: Level A  
REF: MALG1344  
STA: FL.FLSSS.MTH.07.9-12.MA.912.A.1.8 | FL.FLSSS.MTH.07.9-12.MA.912.A.4.6 | FL.FLSSS.MTH.07.9-12.MA.912.A.4.9

TOP: Lesson 9.8 Factor Polynomials Completely  
KEY: factor | solve | cubic equation  
BLM: Comprehension  
NOT: 978-0-618-65612-7

27. ANS:
\[ x = 1 \text{ and } x = 3 \]

PTS: 1  
DIF: Level A  
REF: MALG1382  
STA: FL.FLSSS.MTH.07.9-12.MA.912.A.7.1  
TOP: Lesson 10.3 Solve Quadratic Equations by Graphing  
KEY: solve | quadratic | graph | root  
BLM: Comprehension  
NOT: 978-0-618-65612-7

28. ANS:  
\[ 7\sqrt{5} \]

PTS: 1  
DIF: Level A  
REF: MALG1473  
STA: FL.FLSSS.MTH.07.9-12.MA.912.A.1.1 | FL.FLSSS.MTH.07.9-12.MA.912.A.6.1  
TOP: Lesson 11.2 Simplify Radical Expressions  
KEY: radical | root | integer | simplify  
BLM: Knowledge  
NOT: 978-0-618-65612-7

29. ANS:  
$22.67$

PTS: 1  
DIF: Level B  
REF: MALG1570  
STA: FL.FLSSS.MTH.07.9-12.MA.912.A.2.12  
TOP: Lesson 12.1 Model Inverse Variation  
KEY: inverse variation  
BLM: Application  
NOT: 978-0-618-65612-7

30. ANS:  
Domain: all real numbers except 4; Range: all real numbers except 0

PTS: 1  
DIF: Level B  
REF: MALG1577  
TOP: Lesson 12.2 Graph Rational Functions  
KEY: domain | range | rational function  
BLM: Comprehension  
NOT: 978-0-618-65612-7

31. ANS:
Domain: \( x \geq -1 \); Range: \( y \geq 0 \)

32. \( \text{ANS:} \quad -2.5 \)

33. \( \text{ANS:} \quad \frac{7}{2} \quad \frac{y}{2} \)

34. \( \text{ANS:} \quad \frac{-x}{9} \)

35. \( \text{ANS:} \quad x + 8 + \frac{3}{x} \)

36. \( \text{ANS:} \quad 9.5 \text{ seconds} \)

37. \( \text{ANS:} \quad -8, 2 \)
38. ANS:
   \((-1, 2)\)
   PTS: 1 DIF: Level A REF: MALG1548 STA: FL.FLSSS.MTH.07.9-12.MA.912.G.1.1
   TOP: Lesson 11.5 Apply the Distance and Midpoint Formulas
   KEY: segment | midpoint formula | coordinate geometry
   BLM: Knowledge

39. ANS:
   \(5x^6 + 8x^3 - 8x - 3\)
   PTS: 1 DIF: Level A REF: MALG1219
   TOP: Lesson 9.1 Add and Subtract Polynomials
   KEY: polynomial | exponents | descending | order
   BLM: Knowledge

ESSAY

1. ANS:
   \(60x + 45y = 585\)
   \(x + y = 12\)
   OR other correct equations

   \(\text{Part A}\)
   \(60x + 45y = 585\)
   Changes made to second equation
   \(- (45x + 45y) = -540\)
   \(45(x + y) - 45(12)\)
   \(45x + 45y = 540\)
   \(x = 45 + 15 = 3\)
   \(y = 12 - 3 = 9\)
   OR other valid work that leads to \(x = 3\) and \(y = 9\)

   PTS: 1 DIF: Level B REF: MALG1054
   STA: FL.FLSSS.MTH.07.9-12.MA.912.A.3.14
   TOP: Lesson 7.4 Solve Linear Systems by Multiplying First
   KEY: equation | word | system
   BLM: Application NOT: 978-0-618-65612-7