E-learning Lesson Plans (5days)

Terrance McClendon-Teacher

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Mrs. LaSonya Bryce-Murdaugh

Mrs. Jennifer Nelson- Curriculum Coordinator

Day 1- Quadratic Functions/Equations

TLWBAT- Review and Solve Quadratic Functions/Equations using the graphing method, Factoring, and using the quadratic formula to solve for the x-intercepts (zeros) of the function.

Standard: **A2P.PAFR.4.1** Identify the effect on the graph of replacing f(x) by kf(x), f(x)+k, f(x-k), f(kx) for any real number k including multiple transformations; write an equation of a transformed parent function given its graph. Extend to equations involving rational, polynomial, radical, exponential, and piecewise.

Agenda

1. Bell Ringer/Do Now/Starter
2. Review Bell Ringer/Do Now/Starter
3. Topic Quadratic Equations/Functions
    a. Solve quadratic equations/functions by graphing.
    b. Solve quadratic equations/functions by factoring.
    c. Solve quadratic equations using the quadratic formula.

*The Guided Practice is part of the topic: Quadratic Equations/Functions

4. Independent Practice

5. Summary/Closure

Day2- Solving a system of equations using two variables.

TLWBAT-Review and solve a system of equations with two variables using the graphing, elimination, and substitution methods.

Standard: **A2P.PAFR.6.3** Use linear programming to solve systems of equations and inequalities by addressing the constraints that arise in real-world situations.

Agenda

4. Bell Ringer/Do Now/Starter
5. Review Bell Ringer/Do Now/Starter
6. Topic Quadratic Equations/Functions
    d. Solve system of equations by graphing.
    e. Solve system of equations by elimination method.
    f. Solve quadratic equations by the substitution method.

*The Guided Practice is part of the topic: Solving system of equations

4. Independent Practice

5. Summary/Closure

Day 3- Word Problems (Application Problems) for Quadratic and System of Equations

Standard(s): Standard: **A2P.PAFR.4.1** Identify the effect on the graph of replacing f(x) by kf(x), f(x)+k, f(x-k), f(kx) for any real number k including multiple transformations; write an equation of a transformed parent function given its graph. Extend to equations involving rational, polynomial, radical, exponential, and piecewise.

Standard: **A2P.PAFR.6.3** Use linear programming to solve systems of equations and inequalities by addressing the constraints that arise in real-world situations.

Objective: The learner will use knowledge of solving quadratic functions/equations and system of equations to solve application problems that occur in real life.

1. Bell Ringer
2. Review Bell Ringer
3. Application Problems
    a. Quadratic Functions/Equations
    b. System of Equationa

Guided practice will be part of the teachable moment (topic)

4. Independent Practice
5. Summary/Closure

Day 4- Review Quadratic Equations, System of Equations and Application Problems

Standard(s): Standard: **A2P.PAFR.4.1** Identify the effect on the graph of replacing f(x) by kf(x), f(x)+k, f(x-k), f(kx) for any real number k including multiple transformations; write an equation of a transformed parent function given its graph. Extend to equations involving rational, polynomial, radical, exponential, and piecewise.

Standard: **A2P.PAFR.6.3** Use linear programming to solve systems of equations and inequalities by addressing the constraints that arise in real-world situations.

Objective: The learner will review quadratic equations/functions, system of equations, and application problems

1. Bell Ringer
2. Review Bell Ringer

3. Guide Practice
4. Independent Practice
5. Summary/Closure

*The guided practice will be problems used from previous assignments

Independent Practice will be a quizizz (wayground) pdf saved for students to access.

Day 5- Summative Assessment (Quadratic Equations/Functions, system of equations, and application problems)

Standard(s): Standard: **A2P.PAFR.4.1** Identify the effect on the graph of replacing f(x) by kf(x), f(x)+k, f(x-k), f(kx) for any real number k including multiple transformations; write an equation of a transformed parent function given its graph. Extend to equations involving rational, polynomial, radical, exponential, and piecewise.

Standard: **A2P.PAFR.6.3** Use linear programming to solve systems of equations and inequalities by addressing the constraints that arise in real-world situations.

Objective: The learner will complete a summative assessment on quadratic equations/functions, system of equations, and application problems

1. Bell Ringer
2. Review Bell Ringer
3. Summative Assessment
4. Summary/Closure

 Name_____

Solving Quadratic Equations By Factoring

Date_____ Period____

Solve each equation by factoring.

1) $(3n - 2)(4n + 1) = 0$

2) $m(m - 3) = 0$

3) $(5n - 1)(n + 1) = 0$

4) $(n + 2)(2n + 5) = 0$

5) $3k^2 + 72 = 33k$

6) $n^2 = -18 - 9n$

7) $7v^2 - 42 = -35v$

8) $k^2 = -4k - 4$

9) $-2v^2 - v + 12 = -3v^2 + 6v$

10) $-4n^2 + 6n - 16 = -5n^2$

11) $8r^2 + 3r + 2 = 7r^2$

12) $b^2 + b = 2$

13) $10n^2 - 35 = 65n$

14) $3x^2 - 8x = 16$

15) $16n^2 - 114n = -14$

16) $28n^2 = -96 - 184n$

17) $7a^2 + 32 = 7 - 40a$

18) $42x^2 - 69x + 20 = 7x^2 - 8$

Critical thinking questions. True/False.

19) If a quadratic equation can be factored and each factor contains only real numbers then there cannot be an imaginary solution.

20) If a quadratic equation cannot be factored then it will have at least one imaginary solution.

 Name_____

Solving Quadratic Equations By Factoring

Date_____ Period____

Solve each equation by factoring.

1) $(3n - 2)(4n + 1) = 0$

$\left\{\frac{2}{3}, -\frac{1}{4}\right\}$

2) $m(m - 3) = 0$

$\{3, 0\}$

3) $(5n - 1)(n + 1) = 0$

$\left\{\frac{1}{5}, -1\right\}$

4) $(n + 2)(2n + 5) = 0$

$\left\{-2, -\frac{5}{2}\right\}$

5) $3k^2 + 72 = 33k$

$\{3, 8\}$

6) $n^2 = -18 - 9n$

$\{-6, -3\}$

7) $7v^2 - 42 = -35v$

$\{-6, 1\}$

8) $k^2 = -4k - 4$

$\{-2\}$

9) $-2v^2 - v + 12 = -3v^2 + 6v$

$\{3, 4\}$

10) $-4n^2 + 6n - 16 = -5n^2$

$\{2, -8\}$

11) $8r^2 + 3r + 2 = 7r^2$

$\{-2, -1\}$

12) $b^2 + b = 2$

$\{-2, 1\}$

13) $10n^2 - 35 = 65n$

$\left\{-\frac{1}{2}, 7\right\}$

14) $3x^2 - 8x = 16$

$\left\{-\frac{4}{3}, 4\right\}$

15) $16n^2 - 114n = -14$

$\left\{\frac{1}{8}, 7\right\}$

16) $28n^2 = -96 - 184n$

$\left\{-\frac{4}{7}, -6\right\}$

17) $7a^2 + 32 = 7 - 40a$

$\left\{-\frac{5}{7}, -5\right\}$

18) $42x^2 - 69x + 20 = 7x^2 - 8$

$\left\{\frac{7}{5}, \frac{4}{7}\right\}$

Critical thinking questions. True/False.

19) If a quadratic equation can be factored and each factor contains only real numbers then there cannot be an imaginary solution.

True

20) If a quadratic equation cannot be factored then it will have at least one imaginary solution.

False (Example, $x^2 = 10$)

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 Name_____

Using the Quadratic Formula

Date_____ Period____

Solve each equation with the quadratic formula.

1) $v^2 + 2v - 8 = 0$

2) $k^2 + 5k - 6 = 0$

3) $2v^2 - 5v + 3 = 0$

4) $2a^2 - a - 13 = 2$

5) $2n^2 - n - 4 = 2$

6) $b^2 - 4b - 14 = -2$

7) $8n^2 - 4n = 18$

8) $8a^2 + 6a = -5$

9) $10x^2 + 9 = x$

10) $n^2 = 9n - 20$

11) $3a^2 = 6a - 3$

12) $x^2 = -3x + 40$

13) $9x^2 - 11 = 6x$

14) $4a^2 - 8 = a$

15) $14m^2 + 1 = 6m^2 + 7m$

16) $4x^2 + 4x - 8 = 1$

Name_____

Using the Quadratic Formula

Date_____ Period____

Solve each equation with the quadratic formula.

1) $v^2 + 2v - 8 = 0$

$\{2, -4\}$

2) $k^2 + 5k - 6 = 0$

$\{1, -6\}$

3) $2v^2 - 5v + 3 = 0$

$\left\{\frac{3}{2}, 1\right\}$

4) $2a^2 - a - 13 = 2$

$\left\{3, -\frac{5}{2}\right\}$

5) $2n^2 - n - 4 = 2$

$\left\{2, -\frac{3}{2}\right\}$

6) $b^2 - 4b - 14 = -2$

$\{6, -2\}$

7) $8n^2 - 4n = 18$

$\left\{\frac{1 + \sqrt{37}}{4}, \frac{1 - \sqrt{37}}{4}\right\}$

8) $8a^2 + 6a = -5$

$\left\{\frac{-3 + i\sqrt{31}}{8}, \frac{-3 - i\sqrt{31}}{8}\right\}$

9) $10x^2 + 9 = x$

$\left\{\frac{1 + i\sqrt{359}}{20}, \frac{1 - i\sqrt{359}}{20}\right\}$

10) $n^2 = 9n - 20$

$\{5, 4\}$

11) $3a^2 = 6a - 3$

$\{1\}$

12) $x^2 = -3x + 40$

$\{5, -8\}$

13) $9x^2 - 11 = 6x$

$\left\{\frac{1 + 2\sqrt{3}}{3}, \frac{1 - 2\sqrt{3}}{3}\right\}$

14) $4a^2 - 8 = a$

$\left\{\frac{1 + \sqrt{129}}{8}, \frac{1 - \sqrt{129}}{8}\right\}$

15) $14m^2 + 1 = 6m^2 + 7m$

$\left\{\frac{7 + \sqrt{17}}{16}, \frac{7 - \sqrt{17}}{16}\right\}$

16) $4x^2 + 4x - 8 = 1$

$\left\{\frac{-1 + \sqrt{10}}{2}, \frac{-1 - \sqrt{10}}{2}\right\}$

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Systems of Equations Word Problems

Date_____ Period____

1) The school that Lisa goes to is selling tickets to the annual talent show. On the first day of ticket sales the school sold 4 senior citizen tickets and 5 student tickets for a total of $102. The school took in $126 on the second day by selling 7 senior citizen tickets and 5 student tickets. What is the price each of one senior citizen ticket and one student ticket?

2) Flying with the wind a plane went 183 km/h. Flying into the same wind the plane only went 141 km/h. Find the speed of the plane in still air and the speed of the wind.

3) Castel and Gabriella are selling pies for a school fundraiser. Customers can buy apple pies and lemon meringue pies. Castel sold 6 apple pies and 4 lemon meringue pies for a total of $80. Gabriella sold 6 apple pies and 5 lemon meringue pies for a total of $94. What is the cost each of one apple pie and one lemon meringue pie?

4) The school that Imani goes to is selling tickets to the annual dance competition. On the first day of ticket sales the school sold 3 senior citizen tickets and 3 child tickets for a total of $69. The school took in $91 on the second day by selling 5 senior citizen tickets and 3 child tickets. What is the price each of one senior citizen ticket and one child ticket?

5) Ming and Carlos are selling cookie dough for a school fundraiser. Customers can buy packages of chocolate chip cookie dough and packages of gingerbread cookie dough. Ming sold 8 packages of chocolate chip cookie dough and 12 packages of gingerbread cookie dough for a total of $364. Carlos sold 1 package of chocolate chip cookie dough and 4 packages of gingerbread cookie dough for a total of $93. Find the cost each of one package of chocolate chip cookie dough and one package of gingerbread cookie dough.

6) Kayla's school is selling tickets to the annual dance competition. On the first day of ticket sales the school sold 3 senior citizen tickets and 5 child tickets for a total of $70. The school took in $216 on the second day by selling 12 senior citizen tickets and 12 child tickets. Find the price of a senior citizen ticket and the price of a child ticket.

7) A plane traveled 580 miles to Ankara and back. The trip there was with the wind. It took 5 hours. The trip back was into the wind. The trip back took 10 hours. Find the speed of the plane in still air and the speed of the wind.

8) Amanda and Ndiba are selling flower bulbs for a school fundraiser. Customers can buy packages of tulip bulbs and bags of daffodil bulbs. Amanda sold 6 packages of tulip bulbs and 12 bags of daffodil bulbs for a total of $198. Ndiba sold 7 packages of tulip bulbs and 6 bags of daffodil bulbs for a total of $127. Find the cost each of one package of tulips bulbs and one bag of daffodil bulbs.

9) The local amusement park is a popular field trip destination. This year the senior class at High School A and the senior class at High School B both planned trips there. The senior class at High School A rented and filled 16 vans and 8 buses with 752 students. High School B rented and filled 5 vans and 5 buses with 380 students. Each van and each bus carried the same number of students. How many students can a van carry? How many students can a bus carry?

10) The senior classes at High School A and High School B planned separate trips to New York City. The senior class at High School A rented and filled 16 vans and 5 buses with 417 students. High School B rented and filled 10 vans and 8 buses with 480 students. Every van had the same number of students in it as did the buses. How many students can a van carry? How many students can a bus carry?

11) The senior classes at High School A and High School B planned separate trips to the water park. The senior class at High School A rented and filled 14 vans and 16 buses with 1086 students. High School B rented and filled 10 vans and 13 buses with 870 students. Every van had the same number of students in it as did the buses. Find the number of students in each van and in each bus.

12) Yellowstone National Park is a popular field trip destination. This year the senior class at High School A and the senior class at High School B both planned trips there. The senior class at High School A rented and filled 7 vans and 10 buses with 332 students. High School B rented and filled 4 vans and 15 buses with 459 students. Each van and each bus carried the same number of students. Find the number of students in each van and in each bus.

Systems of Equations Word Problems

Date_____ Period____

1) The school that Lisa goes to is selling tickets to the annual talent show. On the first day of ticket sales the school sold 4 senior citizen tickets and 5 student tickets for a total of $102. The school took in $126 on the second day by selling 7 senior citizen tickets and 5 student tickets. What is the price each of one senior citizen ticket and one student ticket?

senior citizen ticket: $8, student ticket: $14

2) Flying with the wind a plane went 183 km/h. Flying into the same wind the plane only went 141 km/h. Find the speed of the plane in still air and the speed of the wind.

Plane: 162 km/h, Wind: 21 km/h

3) Castel and Gabriella are selling pies for a school fundraiser. Customers can buy apple pies and lemon meringue pies. Castel sold 6 apple pies and 4 lemon meringue pies for a total of $80. Gabriella sold 6 apple pies and 5 lemon meringue pies for a total of $94. What is the cost each of one apple pie and one lemon meringue pie?

apple pie: $4, lemon meringue pie: $14

4) The school that Imani goes to is selling tickets to the annual dance competition. On the first day of ticket sales the school sold 3 senior citizen tickets and 3 child tickets for a total of $69. The school took in $91 on the second day by selling 5 senior citizen tickets and 3 child tickets. What is the price each of one senior citizen ticket and one child ticket?

senior citizen ticket: $11, child ticket: $12

5) Ming and Carlos are selling cookie dough for a school fundraiser. Customers can buy packages of chocolate chip cookie dough and packages of gingerbread cookie dough. Ming sold 8 packages of chocolate chip cookie dough and 12 packages of gingerbread cookie dough for a total of $364. Carlos sold 1 package of chocolate chip cookie dough and 4 packages of gingerbread cookie dough for a total of $93. Find the cost each of one package of chocolate chip cookie dough and one package of gingerbread cookie dough.

package of chocolate chip cookie dough: $17, package of gingerbread cookie dough: $19

6) Kayla's school is selling tickets to the annual dance competition. On the first day of ticket sales the school sold 3 senior citizen tickets and 5 child tickets for a total of $70. The school took in $216 on the second day by selling 12 senior citizen tickets and 12 child tickets. Find the price of a senior citizen ticket and the price of a child ticket.

senior citizen ticket: $10, child ticket: $8

7) A plane traveled 580 miles to Ankara and back. The trip there was with the wind. It took 5 hours. The trip back was into the wind. The trip back took 10 hours. Find the speed of the plane in still air and the speed of the wind.

plane: 87 mph, wind: 29 mph

8) Amanda and Ndiba are selling flower bulbs for a school fundraiser. Customers can buy packages of tulip bulbs and bags of daffodil bulbs. Amanda sold 6 packages of tulip bulbs and 12 bags of daffodil bulbs for a total of $198. Ndiba sold 7 packages of tulip bulbs and 6 bags of daffodil bulbs for a total of $127. Find the cost each of one package of tulips bulbs and one bag of daffodil bulbs.

package of tulips bulbs: $7, bag of daffodil bulbs: $13

9) The local amusement park is a popular field trip destination. This year the senior class at High School A and the senior class at High School B both planned trips there. The senior class at High School A rented and filled 16 vans and 8 buses with 752 students. High School B rented and filled 5 vans and 5 buses with 380 students. Each van and each bus carried the same number of students. How many students can a van carry? How many students can a bus carry?

Van: 18, Bus: 58

10) The senior classes at High School A and High School B planned separate trips to New York City. The senior class at High School A rented and filled 16 vans and 5 buses with 417 students. High School B rented and filled 10 vans and 8 buses with 480 students. Every van had the same number of students in it as did the buses. How many students can a van carry? How many students can a bus carry?

Van: 12, Bus: 45

11) The senior classes at High School A and High School B planned separate trips to the water park. The senior class at High School A rented and filled 14 vans and 16 buses with 1086 students. High School B rented and filled 10 vans and 13 buses with 870 students. Every van had the same number of students in it as did the buses. Find the number of students in each van and in each bus.

Van: 9, Bus: 60

12) Yellowstone National Park is a popular field trip destination. This year the senior class at High School A and the senior class at High School B both planned trips there. The senior class at High School A rented and filled 7 vans and 10 buses with 332 students. High School B rented and filled 4 vans and 15 buses with 459 students. Each van and each bus carried the same number of students. Find the number of students in each van and in each bus.

Van: 6, Bus: 29

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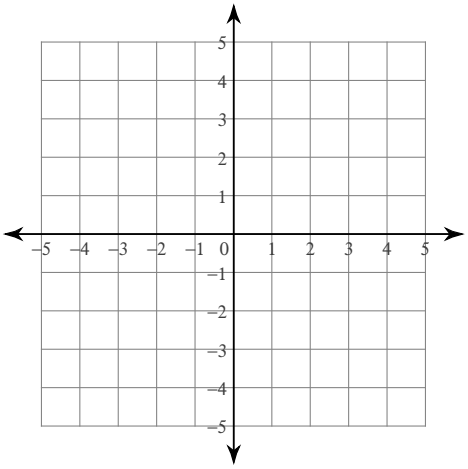
Name_____

Systems of Two Equations

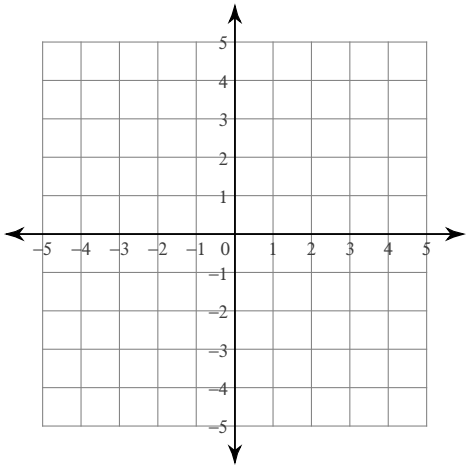
Date_____ Period____

Solve each system by graphing.

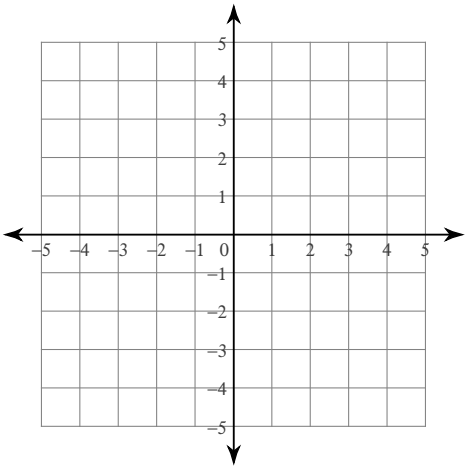
1) $y = -3x + 4$
$y = 3x - 2$



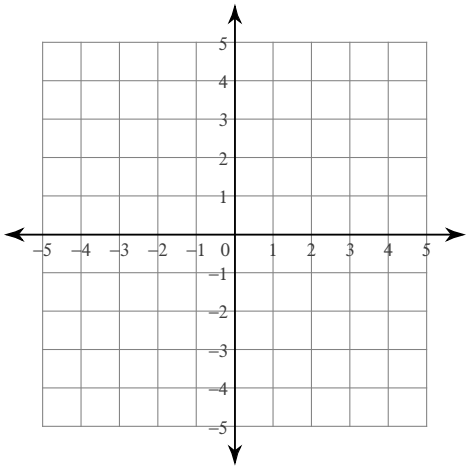
2) $y = x + 2$
$x = -3$



3) $x - y = 3$
$7x - y = -3$



4) $4x + y = 2$
$x - y = 3$



Solve each system by substitution.

5) $y = 4x - 9$
$y = x - 3$

6) $4x + 2y = 10$
$x - y = 13$

7) $y = -5$
$5x + 4y = -20$

8) $x + 7y = 0$
$2x - 8y = 22$

9) $6x + 8y = -22$
$y = -5$

10) $-7x + 2y = 18$
$6x + 6y = 0$

11) $7x + 2y = -19$
$-x + 2y = 21$

12) $3x - 5y = 17$
$y = -7$

13) $-7x + 4y = 24$
$4x - 4y = 0$

14) $4x - y = 20$
$-2x - 2y = 10$

Solve each system by elimination.

15) $8x - 6y = -20$
$-16x + 7y = 30$

16) $6x - 12y = 24$
$-x - 6y = 4$

17) $-8x - 10y = 24$
$6x + 5y = 2$

18) $-24 - 8x = 12y$
$1 + \frac{5}{9}y = -\frac{7}{18}x$

19) $-4y - 11x = 36$
$20 = -10x - 10y$

20) $-9 + 5y = -4x$
$-11x = -20 + 9y$

21) $0 = -2y + 10 - 6x$
$14 - 22y = 18x$

22) $-16y = 22 + 6x$
$-11y - 4x = 15$

23) $-16 + 20x - 8y = 0$
$36 = -18y - 22x$

24) $-\frac{5}{7} - \frac{11}{7}x = -y$
$2y = 7 + 5x$

Critical thinking questions:

25) Write a system of equations with the solution $(4, -3)$.

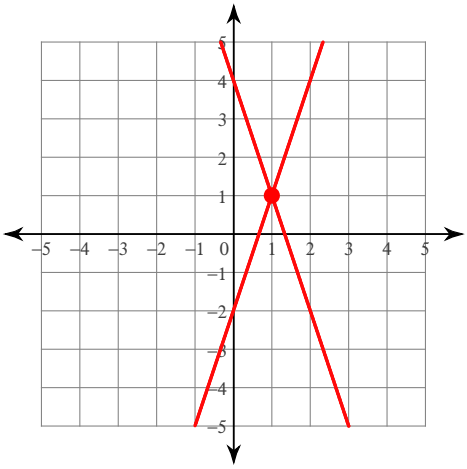
Name_____

Systems of Two Equations

Date_____ Period____

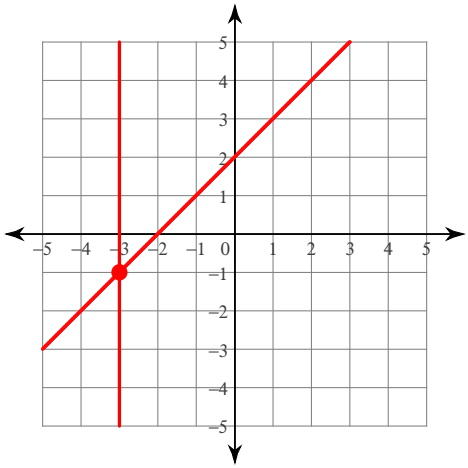
Solve each system by graphing.

1) $y = -3x + 4$
$y = 3x - 2$



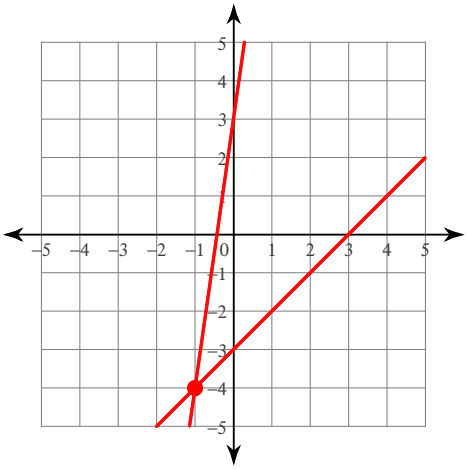
(1, 1)

2) $y = x + 2$
$x = -3$



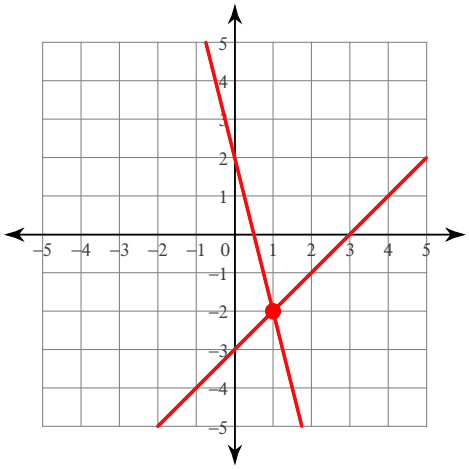
(–3, –1)

3) $x - y = 3$
$7x - y = -3$



(–1, –4)

4) $4x + y = 2$
$x - y = 3$



(1, –2)

Solve each system by substitution.

5) $y = 4x - 9$
$y = x - 3$

(2, –1)

6) $4x + 2y = 10$
$x - y = 13$

(6, –7)

7) $y = -5$
$5x + 4y = -20$

(0, –5)

8) $x + 7y = 0$
$2x - 8y = 22$

(7, –1)

9) $6x + 8y = -22$
$y = -5$
$(3, -5)$

10) $-7x + 2y = 18$
$6x + 6y = 0$
$(-2, 2)$

11) $7x + 2y = -19$
$-x + 2y = 21$
$(-5, 8)$

12) $3x - 5y = 17$
$y = -7$
$(-6, -7)$

13) $-7x + 4y = 24$
$4x - 4y = 0$
$(-8, -8)$

14) $4x - y = 20$
$-2x - 2y = 10$
$(3, -8)$

Solve each system by elimination.

15) $8x - 6y = -20$
$-16x + 7y = 30$
$(-1, 2)$

16) $6x - 12y = 24$
$-x - 6y = 4$
$(2, -1)$

17) $-8x - 10y = 24$
$6x + 5y = 2$
$(7, -8)$

18) $-24 - 8x = 12y$
$1 + \frac{5}{9}y = -\frac{7}{18}x$
$(6, -6)$

19) $-4y - 11x = 36$
$20 = -10x - 10y$
$(-4, 2)$

20) $-9 + 5y = -4x$
$-11x = -20 + 9y$
$(1, 1)$

21) $0 = -2y + 10 - 6x$
$14 - 22y = 18x$
$(2, -1)$

22) $-16y = 22 + 6x$
$-11y - 4x = 15$
$(-1, -1)$

23) $-16 + 20x - 8y = 0$
$36 = -18y - 22x$
$(0, -2)$

24) $-\frac{5}{7} - \frac{11}{7}x = -y$
$2y = 7 + 5x$
$(-3, -4)$

Critical thinking questions:

25) Write a system of equations with the solution $(4, -3)$.

Many answers. Ex: $x + y = 1$, $2x + y = 5$

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WAYGROUND formerly Quizizz **Worksheets**

Name

Class

Date

Factoring Quadratic Equations

Total questions: 25

Worksheet time: 3hrs 2mins

Instructor name: Mr. Terrance McClendon

1. Factor

   r^2 -16r + 60

   a) (r - 6)(r + 10)

   b) (r - 6)(r - 10)

   c) (r +30)(r - 2)

   d) (r - 15)(r + 4)

2. Factor

   x^2 -16x + 48

   a) (x - 12)(x - 4)

   b) (x + 6)(x - 8)

   c) (x + 12)(x - 4)

   d) (x -16)(x - 3)

3. Factor

   x^2+12x+35

   a) Prime

   b) (x+4)(x+3)

   c) (x+7)(x-5)

   d) (x+5)(x+7)

4. Factor

   d^2 - 10d + 25

   a) (d - 5) (d - 5)

   b) (d + 5) (d - 20)

   c) (d + 5) (d - 5)

   d) (d - 15) (d + 10)

5. Factor

   x^2 + 11x + 24

   a) (x + 10)(x + 2)

   b) (x + 2)(x + 12)

   c) (x + 6)(x + 4)

   d) (x + 8)(x + 3)

6. Factor

$x^2 - 9x + 20$

a) (x - 20)(x - 1)

b) (x - 10)(x + 2)

c) (x - 10)(x - 2)

d) (x - 5)(x - 4)

7. Factor

$x^2 - x - 6$

a) (x + 1)(x - 2)

b) (x + 3)(x - 2)

c) Not Factorable

d) (x - 3)(x + 2)

8. Take out the Greatest Common Factor

$18a^2-15a$

a) 3(6a-5)

b) 15a(3a-1)

c) 3a(6a-5)

d) 3a(6a-1)

9. What is the GCF of the trinomial?

$3x^2 - 9x -120$

a) 6

b) 3

c) 2

d) 9

10. Factor

12x + 9

a) not factorable

b) 3(4x - 3)

c) 3(4x + 3)

d) x(12+9)

11. Factor Completely:

$c^2 + c - 42$

a) (c - 2)(c + 21)

b) (c + 14)(c - 3)

c) (c - 6)(c + 7)

d) (c + 7)(x + 6)

12. Factor by GCF:
$56a^3 - 8a$

a) $8a^2(35a^2-a)$
b) $8a^2(56a^3-8a)$
c) $8a(7a^3-a)$
d) $8a(7a^2-1)$

13. Factor
$x^2 + 0x - 25$

a) $(x + 5) (x - 5)$
b) $(x - 5) (x - 5)$
c) $(x + 5) (x + 5)$
d) Prime

14. Factor the Trinomial:
$x^2 - 8x + 15$

a) $(x + 15) (x - 1)$
b) $(x - 5) (x - 3)$
c) $(x + 5) (x + 3)$
d) $(x - 7) (x - 8)$

15. How do you factor a trinomial when the coefficient of x^2 is 1? (ex: $x^2 - 2x + 10$)

a) Slip & Slide
b) Find what multiplies to the last number and adds to the middle
c) Difference of two squares
d) Take out the GCf then you're done

16. What do you call a polynomial that cannot be factored?

a) Proper
b) FOIL
c) Simplified
d) Prime

17. Factor: $x^2 – 5x – 24$

a) $(x - 8)(x + 3)$
b) $(x - 19)(x + 5)$
c) $(x - 5)(x + 19)$
d) $(x - 3)(x + 8)$

18. Factor: $x^2 + 2x – 3$

a) $(x + 2)(x - 1)$
b) $(x + 1)(x - 3)$
c) $(x - 2)(x + 1)$
d) $(x - 1)(x + 3)$

19. Factor Completely: $5n^2 - 6n - 27$

a) (5n - 3)(n + 9)

b) (5n - 9)(n + 3)

c) (5n + 3)(n-9)

d) (5n + 9)(n - 3)

20. Factor

$2c^2 + 4c - 84$

a) (c-6)(2c+14)

b) (c+7)(2x-12)

c) 2(c+7)(c-6)

d) (c-4)(2c+21)

21. Factor Completely: $3x^2 + 5x - 12$

a) (3x - 4)(x + 3)

b) (3x - 3)(x + 4)

c) (3x + 3)(x -4)

d) (3x + 4)(x-3)

22. Factor

$r^2 - 12r + 27$

a) (r - 3) (r - 9)

b) (r + 3) (r + 9)

c) (r - 3)(r + 9)

d) (r + 3) (r - 9)

23. Factor

$3a^2 + 4a + 1$

a) (3a-1)(a-1)

b) (3a+1)(a+1)

c) Not factorable

d) (7a-10)(a-8)

24. What is the factored form of

$16x^2 - 16x - 12$?

a) 4(2x - 2) (2x + 2)

b) 4(2x - 6) (x + 2)

c) 4(2x - 3) (2x + 1)

d) 4(2x - 2) (2x + 3)

25. Factor Completely: $9x^2 - 49$

a) $(3x + 7)(3x + 7)$

b) $(3x - 7)(3x - 7)$

c) Not factorable

d) $(3x + 7)(3x - 7)$

Name_____

Factoring Quadratic Form

Date_____ Period____

Factor each completely.

1) $u^4 + 2u^2$

2) $x^4 + x^2 - 12$

3) $a^4 + 6a^2 + 5$

4) $x^4 - 8x^2 + 15$

5) $u^4 - 4u^2 - 5$

6) $m^4 + 9m^2 + 20$

7) $x^4 + 4x^2 + 3$

8) $x^4 - 7x^2 + 10$

9) $7m^4 - 54m^2 - 16$

10) $7u^4 + 41u^2 + 30$

11) $5x^4 - 9x^2 + 4$

12) $3x^5 - 2x^3 - 8x$

13) $2x^6 + 13x^4 + 6x^2$

14) $2a^4 - 6a^2 + 9$

15) $7m^4 - 44m^2 + 12$

16) $3u^4 - u^2 - 14$

17) $x^6 - 9x^3 + 8$

18) $6x^9n - 30x^5n - 300xn$

19) $x^6 + 4x^3 - 60$

20) $5nu^8 - 15nu^4 + 40n$

21) $x^6 + 2x^3 - 3$

22) $m^6 - 81$

23) $-x^6 + 2x^3 + 15$

24) $x^7m + 2x^4m - 15xm$

Critical thinking questions:

25) Why is this not in quadratic form?
$x^6 + 5x^4 + 6$

26) Factor: $x^{2n} + 9x^n - 10$

Name_____

Factoring Quadratic Form

Date_____ Period____

Factor each completely.

1) $u^4 + 2u^2$

$u^2(u^2 + 2)$

2) $x^4 + x^2 - 12$

$(x^2 - 3)(x^2 + 4)$

3) $a^4 + 6a^2 + 5$

$(a^2 + 1)(a^2 + 5)$

4) $x^4 - 8x^2 + 15$

$(x^2 - 3)(x^2 - 5)$

5) $u^4 - 4u^2 - 5$

$(u^2 - 5)(u^2 + 1)$

6) $m^4 + 9m^2 + 20$

$(m^2 + 4)(m^2 + 5)$

7) $x^4 + 4x^2 + 3$

$(x^2 + 3)(x^2 + 1)$

8) $x^4 - 7x^2 + 10$

$(x^2 - 2)(x^2 - 5)$

9) $7m^4 - 54m^2 - 16$

$(7m^2 + 2)(m^2 - 8)$

10) $7u^4 + 41u^2 + 30$

$(7u^2 + 6)(u^2 + 5)$

11) $5x^4 - 9x^2 + 4$

$(5x^2 - 4)(x + 1)(x - 1)$

12) $3x^5 - 2x^3 - 8x$

$x(3x^2 + 4)(x^2 - 2)$

13) $2x^6 + 13x^4 + 6x^2$

$x^2(2x^2 + 1)(x^2 + 6)$

14) $2a^4 - 6a^2 + 9$

Not factorable

15) $7m^4 - 44m^2 + 12$

$(7m^2 - 2)(m^2 - 6)$

16) $3u^4 - u^2 - 14$

$(3u^2 - 7)(u^2 + 2)$

17) $x^6 - 9x^3 + 8$

$(x - 2)(x^2 + 2x + 4)(x - 1)(x^2 + x + 1)$

18) $6x^9n - 30x^5n - 300xn$

$6xn(x^4 - 10)(x^4 + 5)$

19) $x^6 + 4x^3 - 60$

$(x^3 - 6)(x^3 + 10)$

20) $5nu^8 - 15nu^4 + 40n$

$5n(u^8 - 3u^4 + 8)$

21) $x^6 + 2x^3 - 3$

$(x - 1)(x^2 + x + 1)(x^3 + 3)$

22) $m^6 - 81$

$(m^3 + 9)(m^3 - 9)$

23) $-x^6 + 2x^3 + 15$

$-(x^3 - 5)(x^3 + 3)$

24) $x^7m + 2x^4m - 15xm$

$xm(x^3 - 3)(x^3 + 5)$

Critical thinking questions:

25) Why is this not in quadratic form?

$x^6 + 5x^4 + 6$

The middle term should have x^3 not x^4

26) Factor: $x^{2n} + 9x^n - 10$

$(x^n + 10)(x^n - 1)$

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E-Learning Summative Assessment

Name_____ Date_____ Score_____

Part One: Quadratic Equations/Functions-Solve the following quadratic equations using any method used for E-Learning.

1. $6n^2 + 30n - 36 = 0$
2. $y^2 + 11y + 18 = 0$
3. $x^2 + 13x + 40 = 0$
4. $16r^2 - 24r + 8 = 0$
5. $4r^2 + 16r - 180 = 0$
6. $3x^2 + 30x + 27 = 0$

Part Two: System of Equations- Solve the following systems of equations using method discussed during E-Learning.

1. $-2x + y = 5$
   $6x - 3y = -9$
2. $y = x + 4$
   $3x - 4y = -19$
3. $-4x + y = 6$
   $-5x - y = 21$
4. $6x + 4y = -8$
   $-6x + y = 28$
5. $x = -2y$
   $x - 9 = 9$
6. $x + y = 3$
   $x - y = -3$

Part Three-Application (Word Problems)-Solve the following application problems using any method discussed during E-Learning.

E-Learning Summative Assessment

Name_____ Date_____ Score_____

Flying to Kampala with a tailwind a plane averaged 158 km/h. On the return trip the plane only averaged 112 km/h while flying back into the same wind. Find the speed of the wind and the speed of the plane in still air.

The school that Stefan goes to is selling tickets to a choral performance. On the first day of ticket sales the school sold 3 senior citizen tickets and 1 child ticket for a total of $38. The school took in $52 on the second day by selling 3 senior citizen tickets and 2 child tickets. Find the price of a senior citizen ticket and the price of a child ticket.

The sum of the digits of a certain two-digit number is 7. Reversing its digits increases the number by 9. What is the number?

A boat traveled 210 miles downstream and back. The trip downstream took 10 hours. The trip back took 70 hours. What is the speed of the boat in still water? What is the speed of the current?

4) A rock is thrown from the top of a tall building. The distance, in feet, between the rock and the ground x seconds after it is thrown is given by $f(x) = -16x^2 - 4x + 382$ How long after the rock is thrown does it hit the ground?

A) 12.256 seconds B) 11.50 seconds
C) 4.7324 seconds D) 7.236 seconds

E-Learning Summative Assessment

Name_____ Date_____ Score_____

1) A fireworks rocket is launched from a hill above a lake. The rocket will fall into the lake after exploding at its maximum height. The rocket's height above the surface of the lake is given by g(x)= $-16x^2 + 64x + 80$. What is the maximum height of the rocket?

A) 150 feet B) 80 feet
C) 120 feet D) 144 feet

2) A fireworks rocket is launched from a hill above a lake. The rocket will fall into the lake after exploding at its maximum height. The rocket's height above the surface of the lake is given by g(x)= $-16x^2 + 64x + 80$. How long will it take the rocket to hit the lake?

A) 5 seconds B) 8 seconds
C) 12 seconds D) 10 seconds

3) A rock is thrown from the top of a tall building. The distance, in feet, between the rock and the ground x seconds after it is thrown is given by f(x) = $-16x^2 - 4x + 382$ How long after the rock is thrown is it 340 feet from the ground?

A) 2.256 seconds B) 1.50 seconds
C) 3.324 seconds D) .236 seconds