

Algebra II and Precalculus Advanced (APA) Summer Packet

Topics/Worksheets on the Following Pages

1. Factoring: GCF, the difference of two squares/two cubes
2. Simplifying rational expressions
3. Simplifying expressions involving negative and rational exponents
4. Right triangle trig (SOH-CAH-TOA) and special right triangles.
5. Multi-Step Special Right Triangles
6. Graphing Lines
7. Graphing Quadratics
8. Graphing Radicals
9. Factoring Quadratics
10. Isolating a Variable
11. Solving Systems of Equations

Topics you may wish to explore for added practice

- Distance Formula and Midpoint formula
- Radicals... simplifying and all operations.
- Basic Area and volume formulas
- Domain

Factoring: Includes GCF, Difference of Two Square/Two Cubes

1. $10x - 15x^3$

2. $3ab^2 - 6a^2b$

3. $10xy - 15x^2y^2$

4. $c^2 + 6c + 5$

5. $y^2 - 6y + 8$

6. $x^2 - 13x - 48$

7. $x^2 - 16x + 64$

8. $x^2 - 121$

9. $x^2 + 64$

10. $2x^2 + 15x + 7$

11. $3x^2 - 5x - 12$

12. $3x^2 + 5x - 12$

13. $12x^6 + 27x^5 + 60x^4$

14. $8x^9 + 24x^8 + 192x^7$

Simplifying Rational Expressions

Date _____ Period _____

Simplify each expression.

1) $-\frac{36x^3}{42x^2}$

2) $\frac{16r^2}{16r^3}$

3) $\frac{16p^2}{28p}$

4) $\frac{32n^2}{24n}$

5) $-\frac{70n^2}{28n}$

6) $\frac{15n}{30n^3}$

7) $\frac{2r-4}{r-2}$

8) $\frac{45}{10a-10}$

9) $\frac{x-4}{3x^2-12x}$

10) $\frac{15a-3}{24}$

11) $\frac{v-5}{v^2-10v+25}$

12) $\frac{x+6}{x^2+5x-6}$

$$13) \frac{27}{27x + 18}$$

$$14) \frac{v^2 - 7v - 30}{v^2 - 5v - 24}$$

$$15) \frac{x^2 + 8x + 12}{x^2 + 3x - 18}$$

$$16) \frac{x^2 - 11x + 18}{x^2 + 2x - 8}$$

$$17) \frac{b^2 + 3b - 28}{b^2 - 49}$$

$$18) \frac{v^2 - 3v - 40}{v^2 - 11v + 24}$$

$$19) \frac{4n - 4}{6n - 20}$$

$$20) \frac{v^2 - 5v - 14}{v^2 + 4v + 4}$$

$$21) \frac{6v^3 + 42v^2}{2v^2 + 26v + 84}$$

$$22) \frac{x^3 - x^2 - 42x}{2x^2 - 20x + 42}$$

$$23) \frac{2v^2 + 10v - 48}{8v + 64}$$

$$24) \frac{9x^2 + 81x}{x^3 + 8x^2 - 9x}$$

$$25) \frac{x^2 + 2x - 80}{2x^3 - 24x^2 + 64x}$$

$$26) \frac{3r^2 - 39r + 90}{r^2 - 3r - 70}$$

Simplifying Rational Expressions

Date _____ Period _____

Simplify each expression.

1) $-\frac{36x^3}{42x^2}$

$$-\frac{6x}{7}$$

2) $\frac{16r^2}{16r^3}$

$$\frac{1}{r}$$

3) $\frac{16p^2}{28p}$

$$\frac{4p}{7}$$

4) $\frac{32n^2}{24n}$

$$\frac{4n}{3}$$

5) $-\frac{70n^2}{28n}$

$$-\frac{5n}{2}$$

6) $\frac{15n}{30n^3}$

$$\frac{1}{2n^2}$$

7) $\frac{2r-4}{r-2}$

$$2$$

8) $\frac{45}{10a-10}$

$$\frac{9}{2(a-1)}$$

9) $\frac{x-4}{3x^2-12x}$

$$\frac{1}{3x}$$

10) $\frac{15a-3}{24}$

$$\frac{5a-1}{8}$$

11) $\frac{v-5}{v^2-10v+25}$

$$\frac{1}{v-5}$$

12) $\frac{x+6}{x^2+5x-6}$

$$\frac{1}{x-1}$$

$$13) \frac{27}{27x + 18}$$

$$\frac{3}{3x + 2}$$

$$14) \frac{v^2 - 7v - 30}{v^2 - 5v - 24}$$

$$\frac{v - 10}{v - 8}$$

$$15) \frac{x^2 + 8x + 12}{x^2 + 3x - 18}$$

$$\frac{x + 2}{x - 3}$$

$$16) \frac{x^2 - 11x + 18}{x^2 + 2x - 8}$$

$$\frac{x - 9}{x + 4}$$

$$17) \frac{b^2 + 3b - 28}{b^2 - 49}$$

$$\frac{b - 4}{b - 7}$$

$$18) \frac{v^2 - 3v - 40}{v^2 - 11v + 24}$$

$$\frac{v + 5}{v - 3}$$

$$19) \frac{4n - 4}{6n - 20}$$

$$\frac{2(n - 1)}{3n - 10}$$

$$20) \frac{v^2 - 5v - 14}{v^2 + 4v + 4}$$

$$\frac{v - 7}{v + 2}$$

$$21) \frac{6v^3 + 42v^2}{2v^2 + 26v + 84}$$

$$\frac{3v^2}{v + 6}$$

$$22) \frac{x^3 - x^2 - 42x}{2x^2 - 20x + 42}$$

$$\frac{x(x + 6)}{2(x - 3)}$$

$$23) \frac{2v^2 + 10v - 48}{8v + 64}$$

$$\frac{v - 3}{4}$$

$$24) \frac{9x^2 + 81x}{x^3 + 8x^2 - 9x}$$

$$\frac{9}{x - 1}$$

$$25) \frac{x^2 + 2x - 80}{2x^3 - 24x^2 + 64x}$$

$$\frac{x + 10}{2x(x - 4)}$$

$$26) \frac{3r^2 - 39r + 90}{r^2 - 3r - 70}$$

$$\frac{3(r - 3)}{r + 7}$$

Simplify Expressions Involving Negative and Rational Exponents

1. $\frac{4}{2m^{-5}}$

2. $\left(\frac{-6x^2y}{2xy^3}\right)^3$

3. $(-6)^2 xy^{-1}$

4. $\frac{(x^3)^2}{(x^5)^3}$

5. $\left(\frac{2x^3y^2}{3xy}\right)^{-3}$

6. $(-2x^2)^{-3}(4x^8)$

7. $\frac{15x^3z^{-5}}{25y^{-4}}$

8. $3x^2 \cdot (4x^3)^2$

9. $(-3a^3)^3 \cdot (4a)^0$

10. $\left(\frac{3x^2}{2y^2}\right)^5$

11. $\left(\frac{5x^{13}y^5z^2}{3 \cdot 5^2}\right)^0$

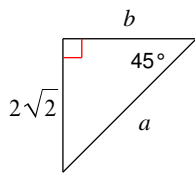
12. $(g^3 \cdot g^{-2})^4$

Special Right Triangles

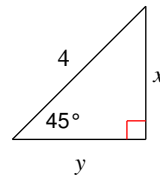
Date _____ Period _____

Find the missing side lengths. Leave your answers as radicals in simplest form.

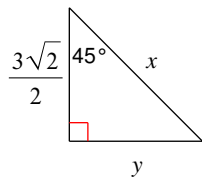
1)



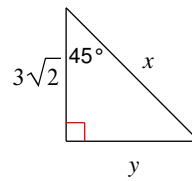
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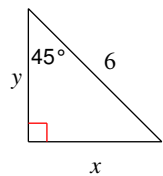
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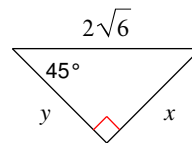
4)



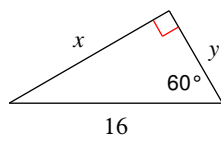
5)



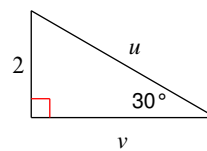
6)



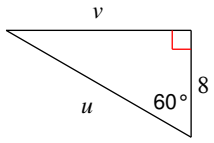
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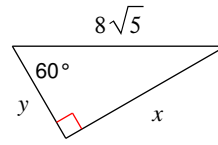
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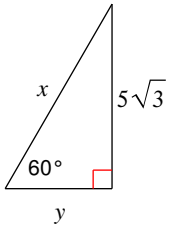
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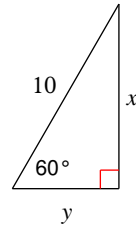
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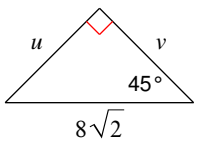
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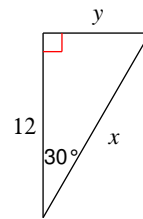
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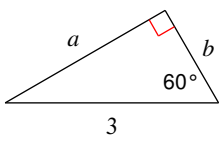
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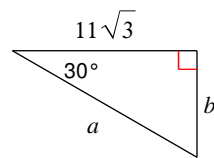
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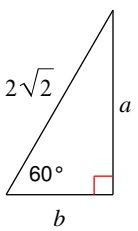
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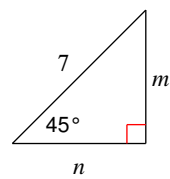
16)



17)



18)

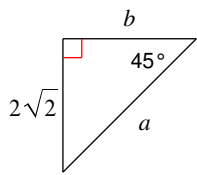


Special Right Triangles

Date _____ Period _____

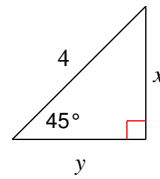
Find the missing side lengths. Leave your answers as radicals in simplest form.

1)



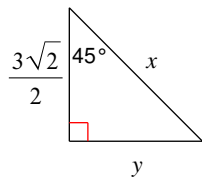
$$a = 4, b = 2\sqrt{2}$$

2)



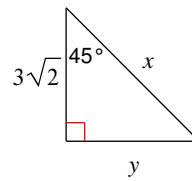
$$x = 2\sqrt{2}, y = 2\sqrt{2}$$

3)



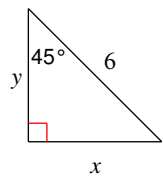
$$x = 3, y = \frac{3\sqrt{2}}{2}$$

4)



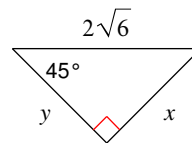
$$x = 6, y = 3\sqrt{2}$$

5)



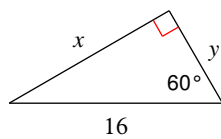
$$x = 3\sqrt{2}, y = 3\sqrt{2}$$

6)



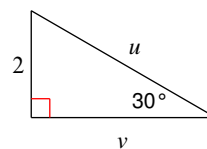
$$x = 2\sqrt{3}, y = 2\sqrt{3}$$

7)



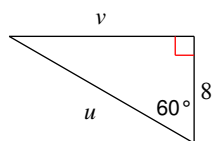
$$x = 8\sqrt{3}, y = 8$$

8)



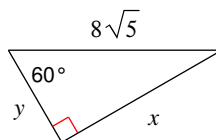
$$u = 4, v = 2\sqrt{3}$$

9)



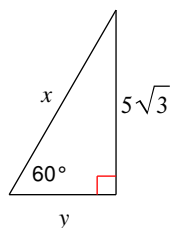
$$u = 16, v = 8\sqrt{3}$$

10)



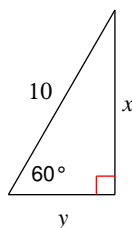
$$x = 4\sqrt{15}, y = 4\sqrt{5}$$

11)



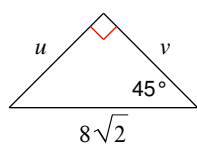
$$x = 10, y = 5$$

12)



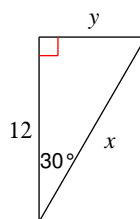
$$x = 5\sqrt{3}, y = 5$$

13)



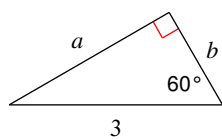
$$u = 8, v = 8$$

14)



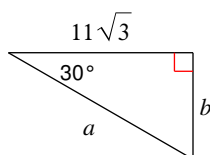
$$x = 8\sqrt{3}, y = 4\sqrt{3}$$

15)



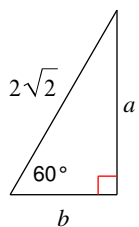
$$a = \frac{3\sqrt{3}}{2}, b = \frac{3}{2}$$

16)



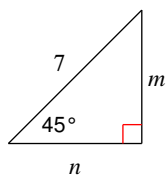
$$a = 22, b = 11$$

17)



$$a = \sqrt{6}, b = \sqrt{2}$$

18)



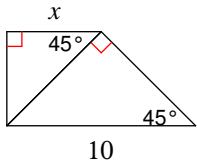
$$m = \frac{7\sqrt{2}}{2}, n = \frac{7\sqrt{2}}{2}$$

Multi-Step Special Right Triangles

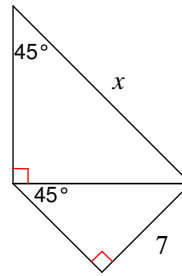
Date _____ Period _____

Find the missing side lengths. Leave your answers as radicals in simplest form.

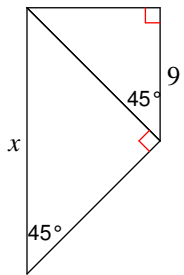
1)



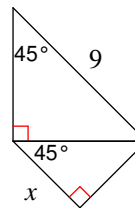
2)



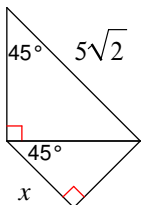
3)



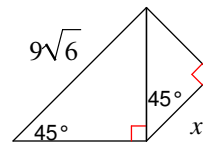
4)



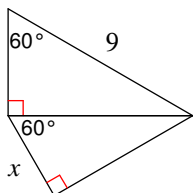
5)



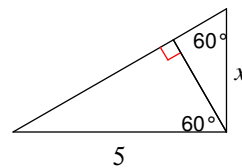
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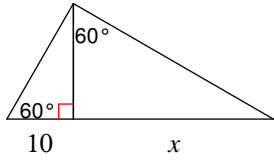
7)



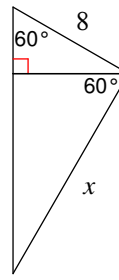
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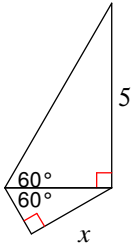
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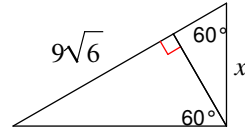
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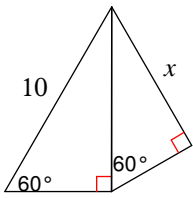
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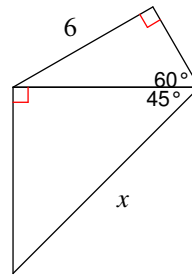
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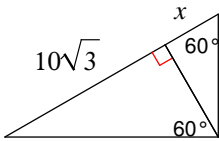
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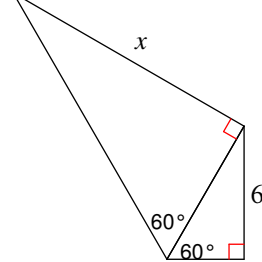
14)



15)



16)

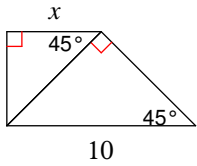


Multi-Step Special Right Triangles

Date _____ Period _____

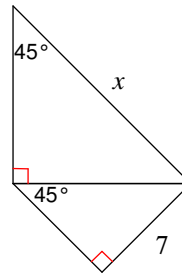
Find the missing side lengths. Leave your answers as radicals in simplest form.

1)



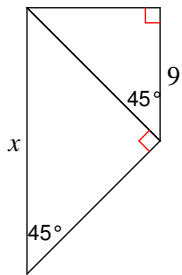
5

2)



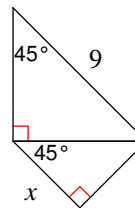
14

3)



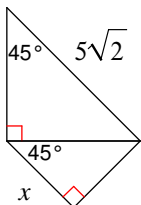
18

4)



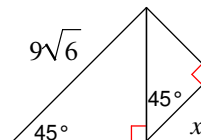
$\frac{9}{2}$

5)



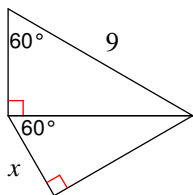
$\frac{5\sqrt{2}}{2}$

6)



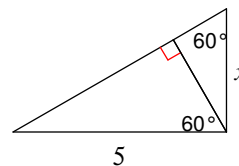
$\frac{9\sqrt{6}}{2}$

7)



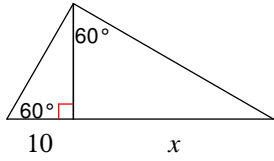
$\frac{9\sqrt{3}}{4}$

8)



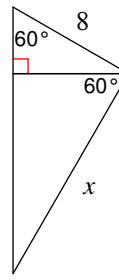
$\frac{5\sqrt{3}}{3}$

9)



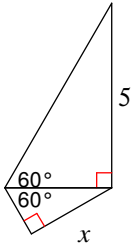
30

10)



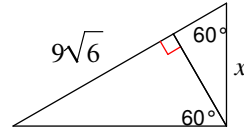
$8\sqrt{3}$

11)



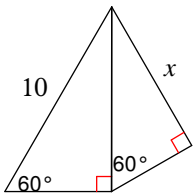
$\frac{5}{2}$

12)



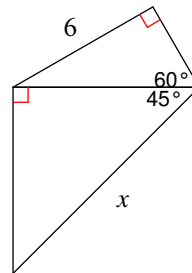
$6\sqrt{6}$

13)



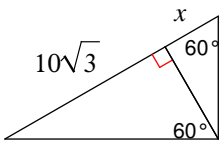
$\frac{15}{2}$

14)



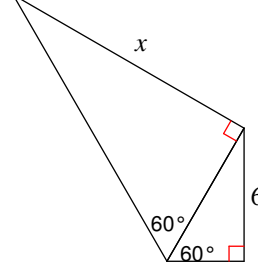
$4\sqrt{6}$

15)



$\frac{10\sqrt{3}}{3}$

16)



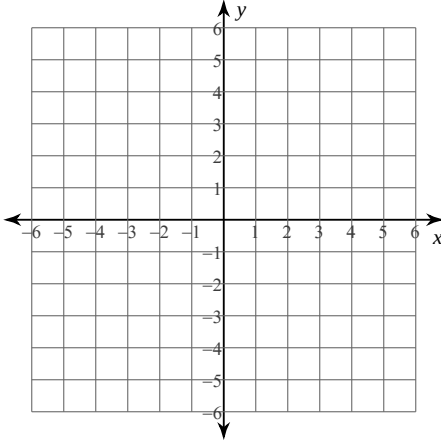
12

Graphing Lines

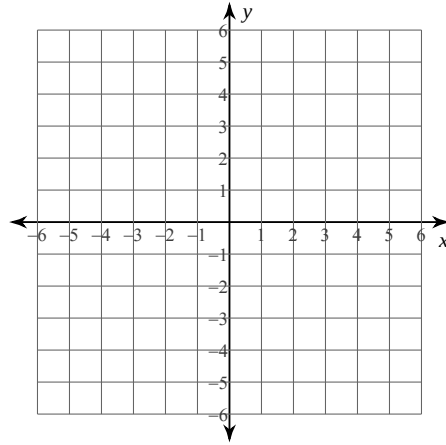
Date _____ Period _____

Sketch the graph of each line.

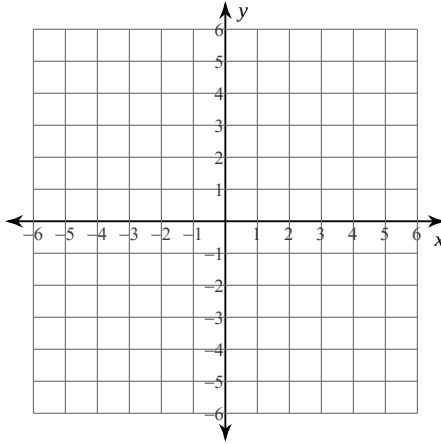
1) $y = \frac{7}{2}x - 2$



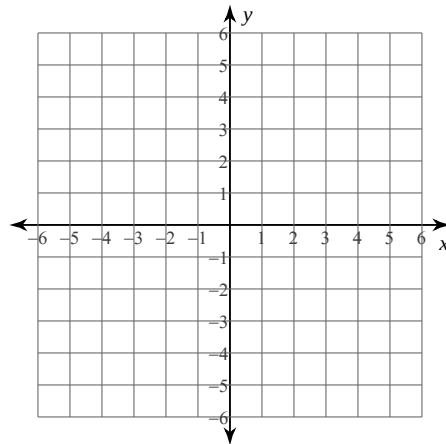
2) $y = -6x + 3$



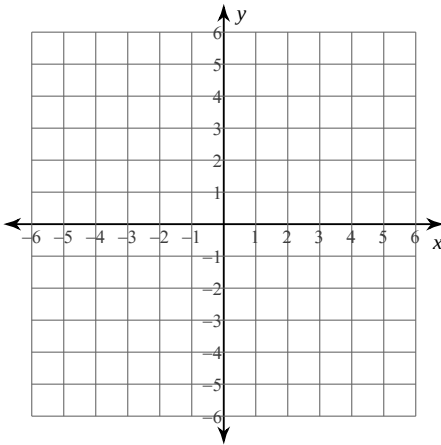
3) $y = -5$



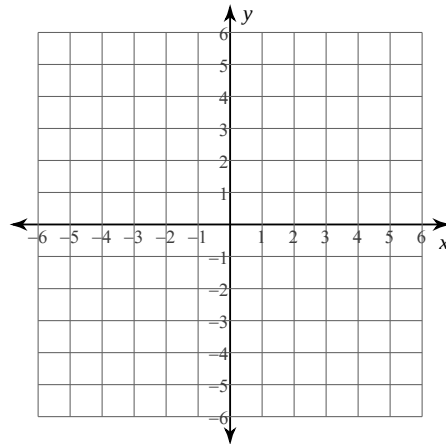
4) $y = \frac{6}{5}x + 1$



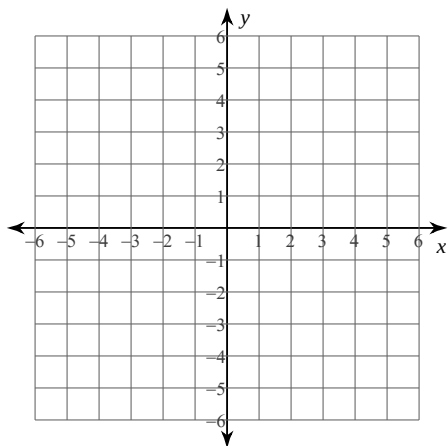
5) $y = \frac{1}{4}x + 2$



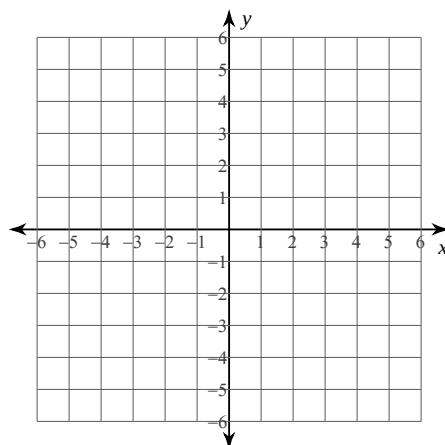
6) $x = 5$



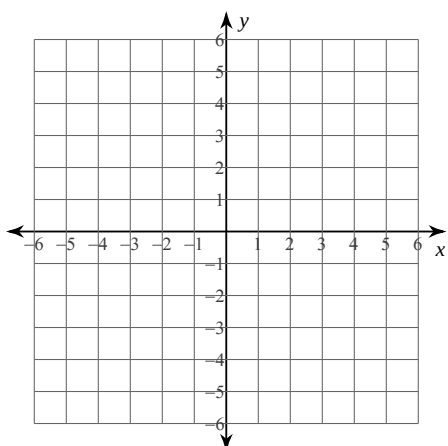
$$7) y = \frac{5}{3}x$$



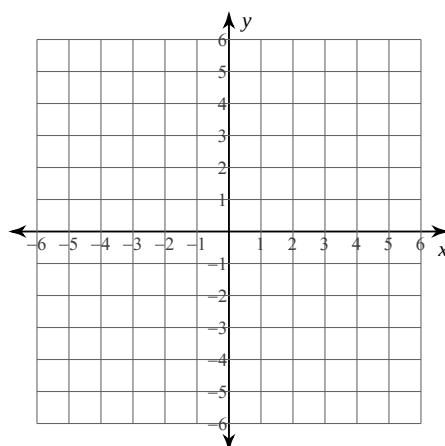
$$8) x = 0$$



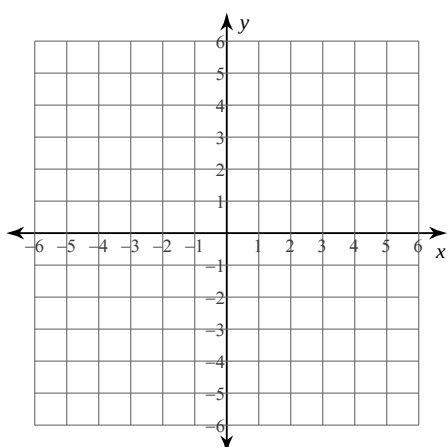
$$9) y = -\frac{1}{3}x + 3$$



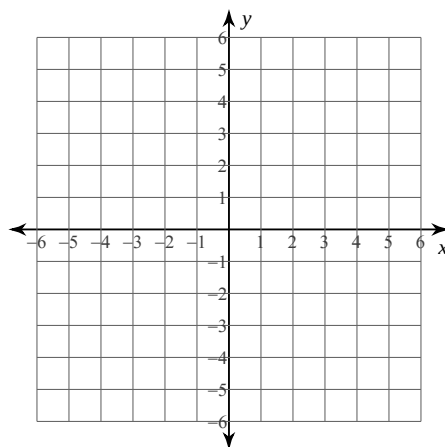
$$10) y = \frac{1}{5}x - 4$$



$$11) y = \frac{1}{2}x - 2$$



$$12) y = 2x + 5$$

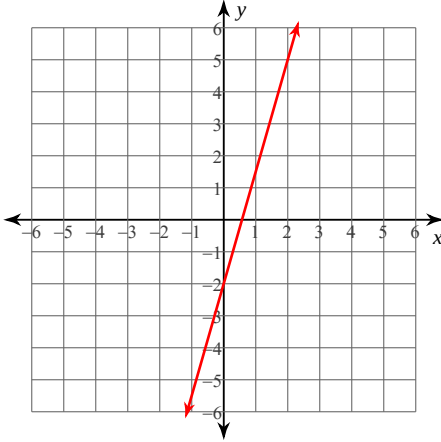


Graphing Lines

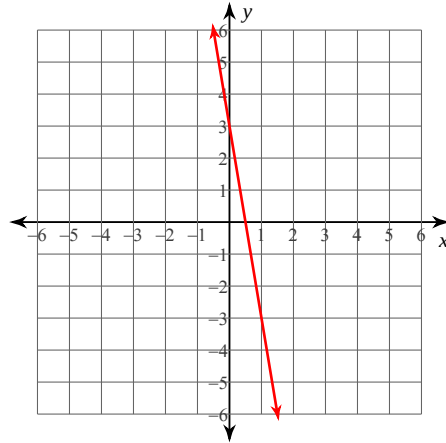
Date _____ Period _____

Sketch the graph of each line.

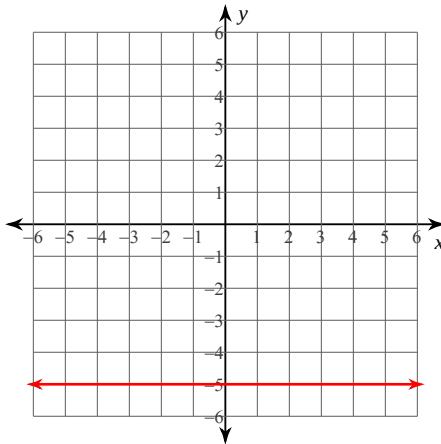
1) $y = \frac{7}{2}x - 2$



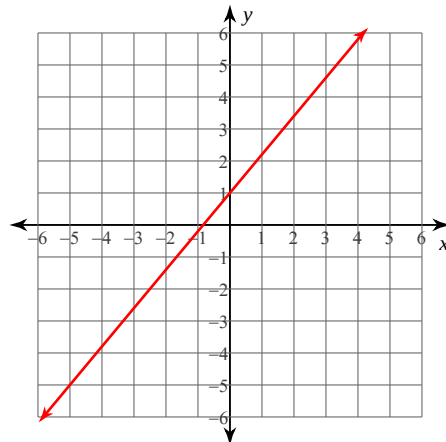
2) $y = -6x + 3$



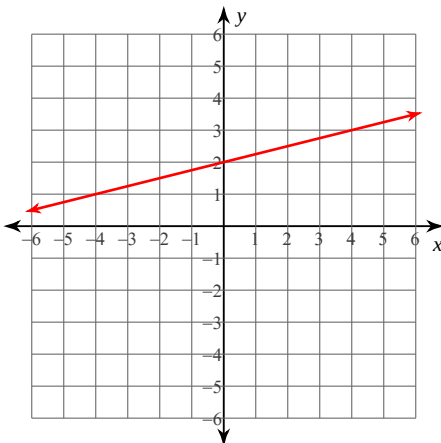
3) $y = -5$



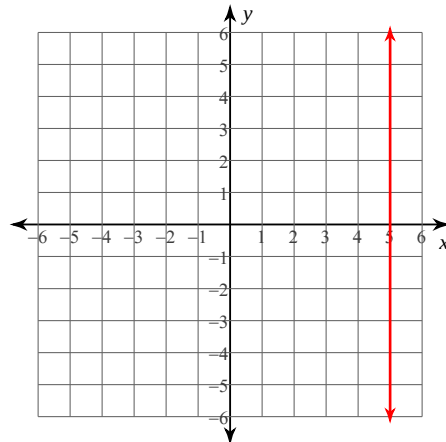
4) $y = \frac{6}{5}x + 1$



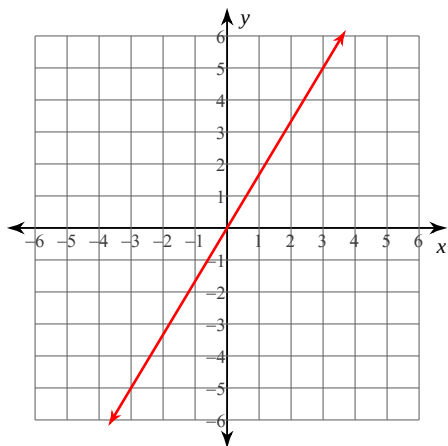
5) $y = \frac{1}{4}x + 2$



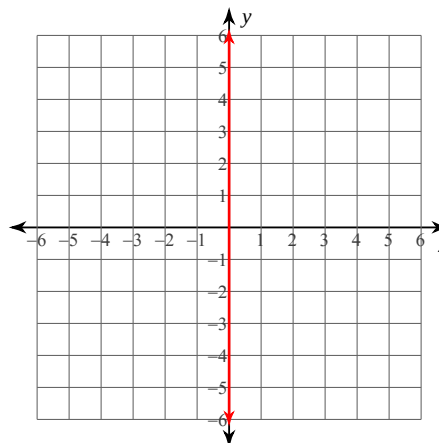
6) $x = 5$



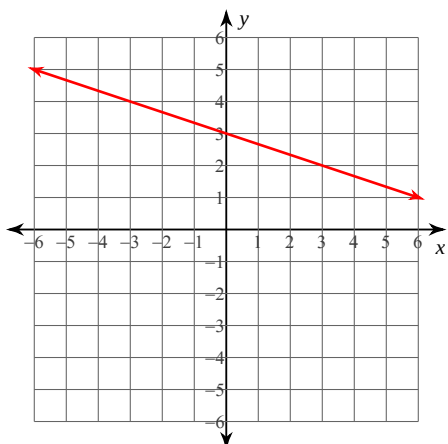
7) $y = \frac{5}{3}x$



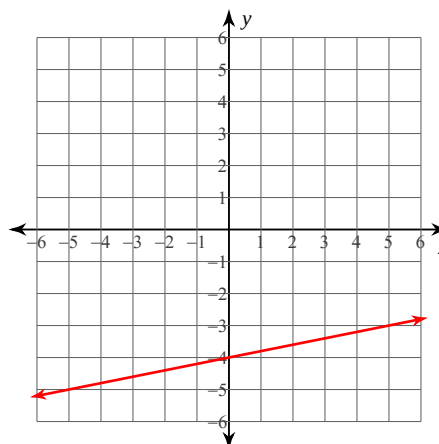
8) $x = 0$



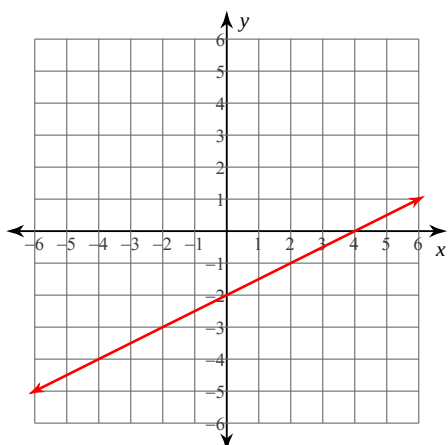
9) $y = -\frac{1}{3}x + 3$



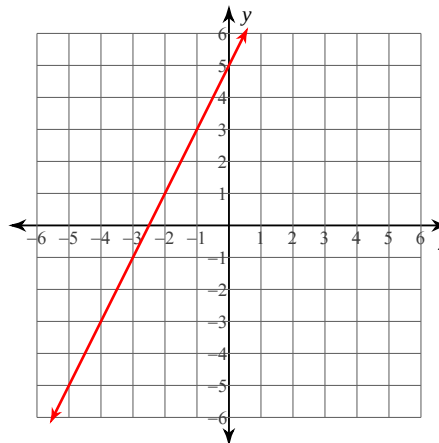
10) $y = \frac{1}{5}x - 4$



11) $y = \frac{1}{2}x - 2$



12) $y = 2x + 5$

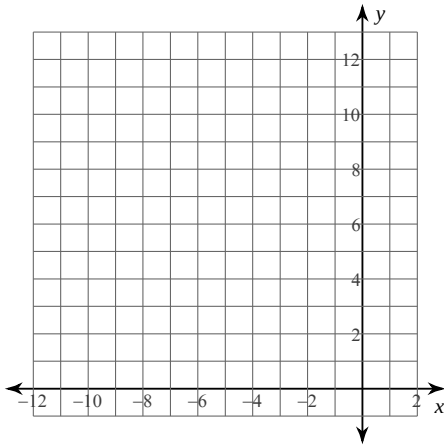


Graphing Quadratic Functions

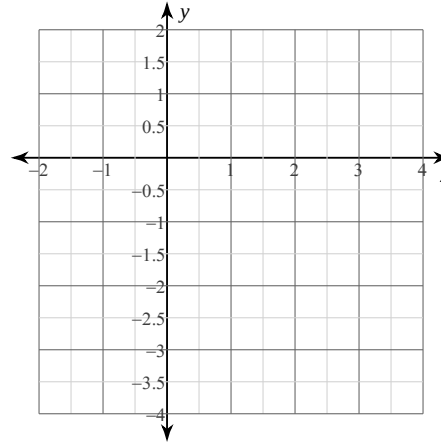
Date _____ Period _____

Sketch the graph of each function.

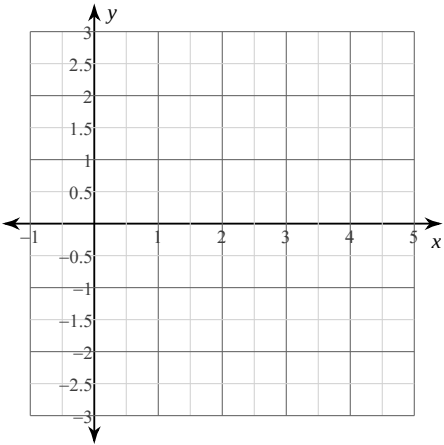
1) $y = 3x^2$



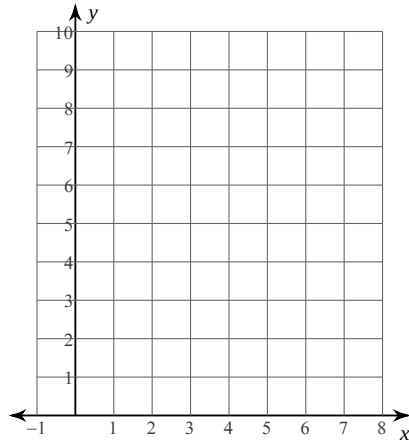
2) $y = -\frac{1}{2}x^2$



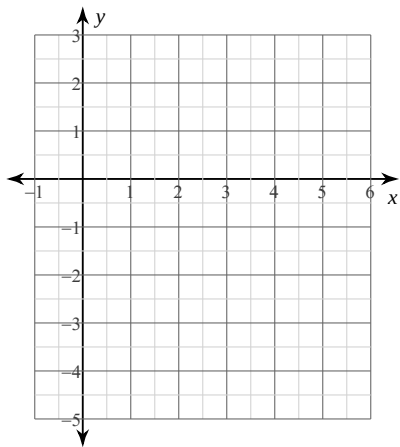
3) $y = -x^2 + 2x + 1$



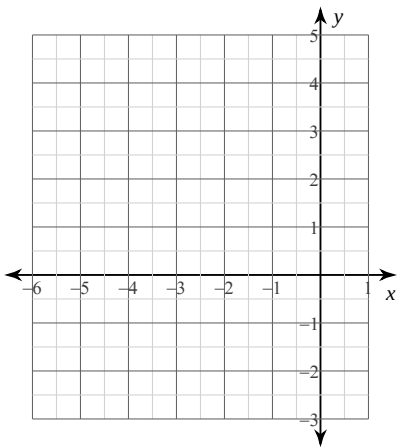
4) $y = 2x^2 - 16x + 33$



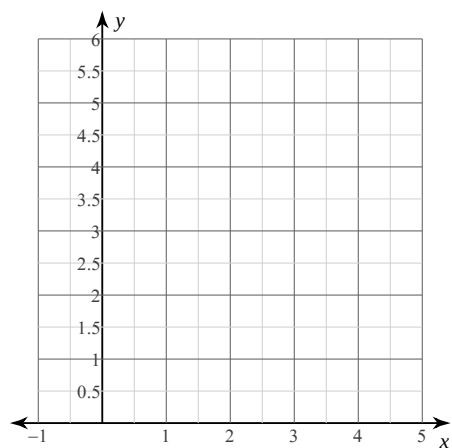
5) $y = x^2 - 8x + 13$



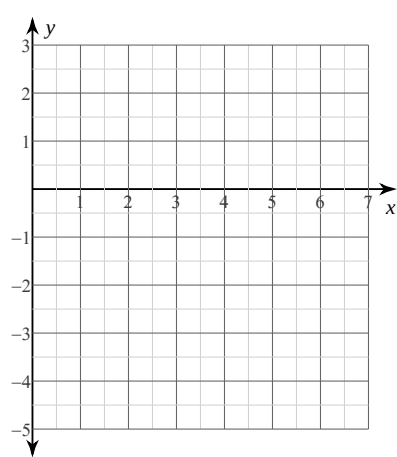
6) $y = -x^2 - 8x - 13$



7) $y = (x - 3)^2 + 1$



8) $y = \frac{1}{2}(x - 4)^2 - 2$

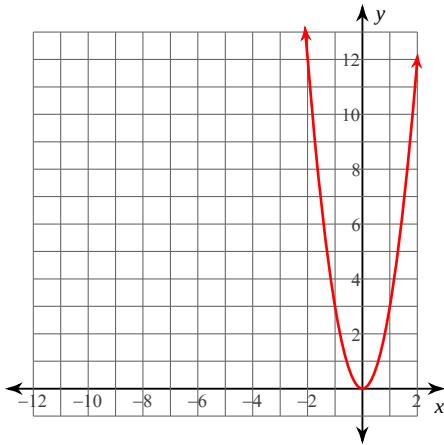


Graphing Quadratic Functions

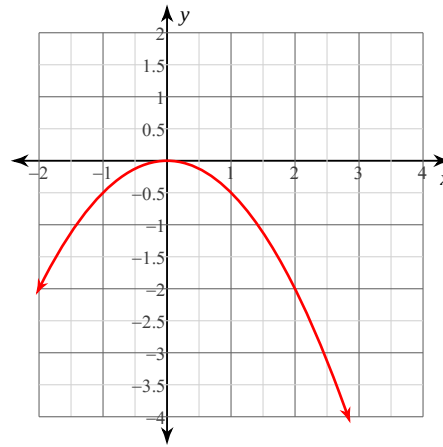
Date _____ Period _____

Sketch the graph of each function.

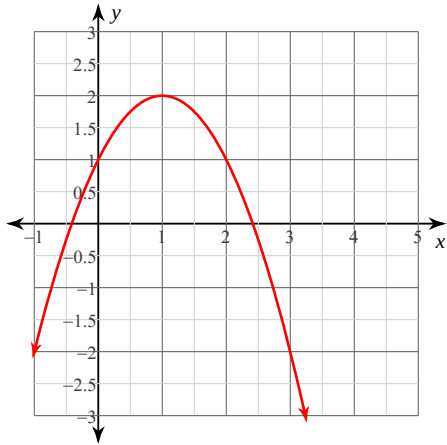
1) $y = 3x^2$



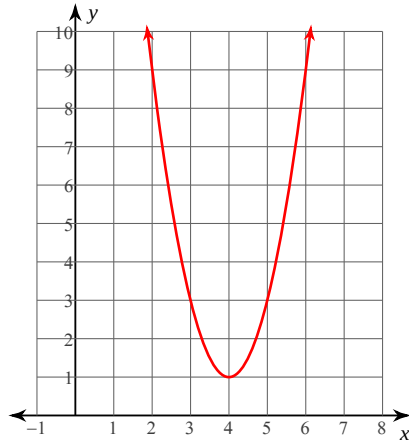
2) $y = -\frac{1}{2}x^2$



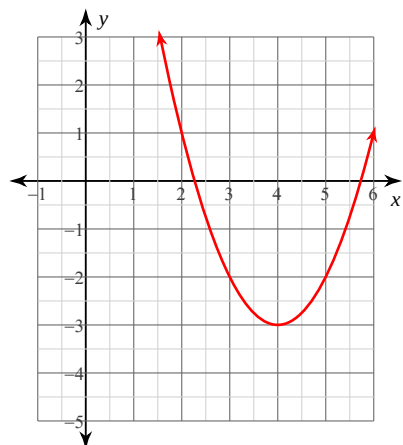
3) $y = -x^2 + 2x + 1$



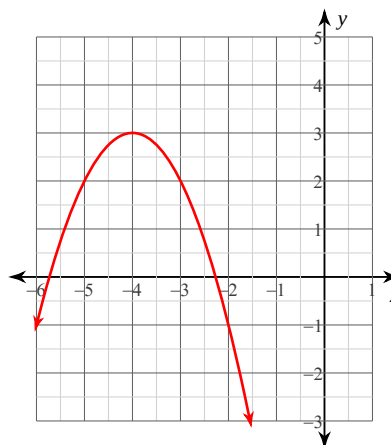
4) $y = 2x^2 - 16x + 33$



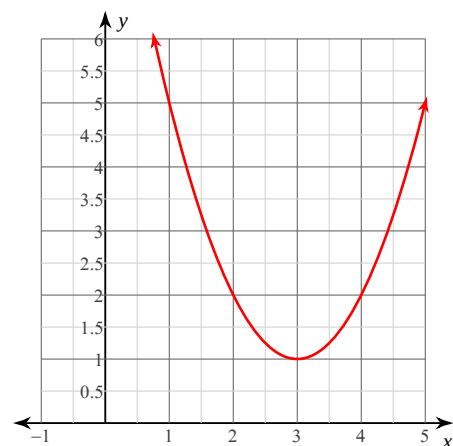
5) $y = x^2 - 8x + 13$



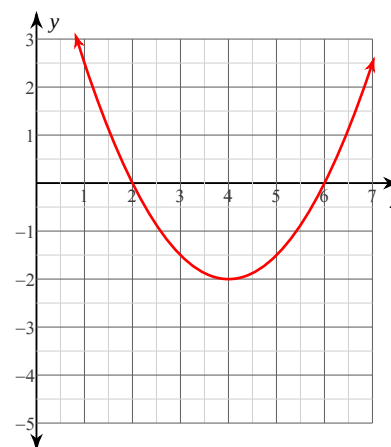
6) $y = -x^2 - 8x - 13$



7) $y = (x - 3)^2 + 1$



8) $y = \frac{1}{2}(x - 4)^2 - 2$



Graphing Radicals

Date _____ Period _____

Identify the domain and range of each.

1) $y = \sqrt{x-2} + 5$

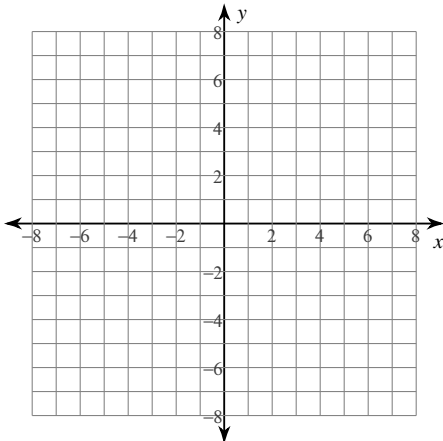
2) $y = \sqrt{x+2} - 3$

3) $y = \sqrt[3]{x+1} - 4$

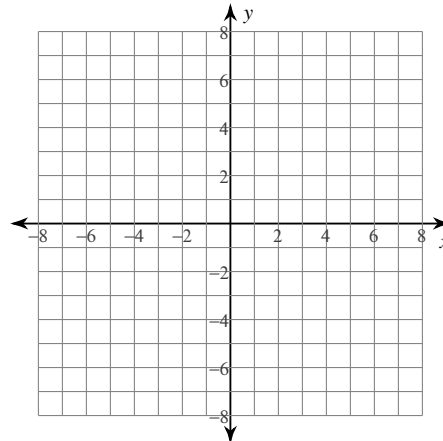
4) $y = \sqrt[3]{x-1} - 1$

Sketch the graph of each function.

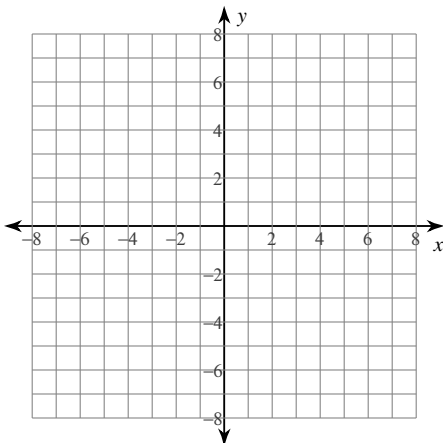
5) $y = \sqrt{x} + 5$



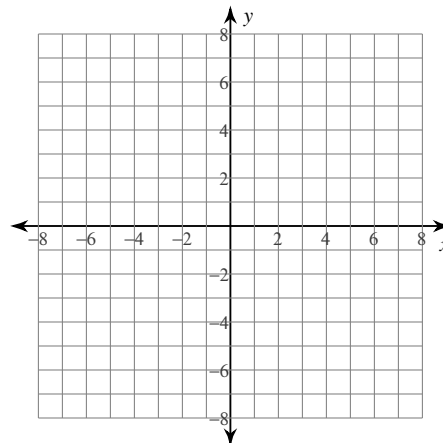
6) $y = \sqrt{x} - 2$



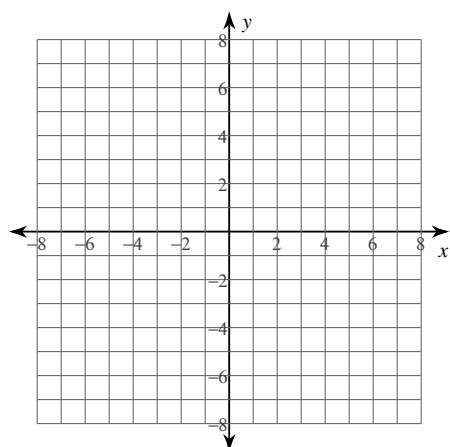
7) $y = 3 + \sqrt{x}$



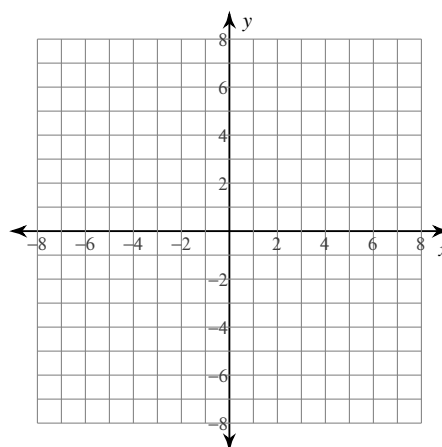
8) $y = \sqrt{x} + 4$



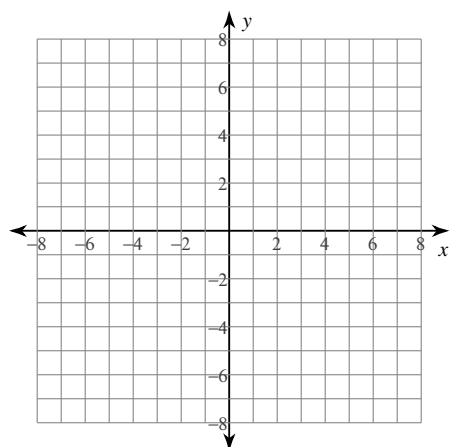
9) $y = -2\sqrt{x+2}$



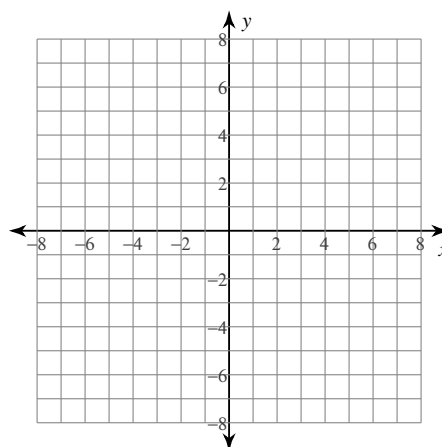
10) $y = \frac{1}{2}\sqrt[3]{x+1} + 4$



11) $y = \sqrt{x-4} - 2$

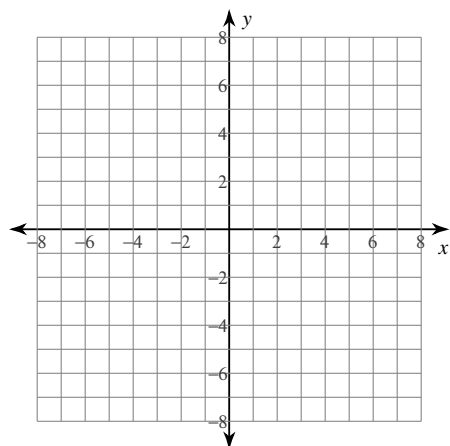


12) $y = -2 + \sqrt[3]{x}$

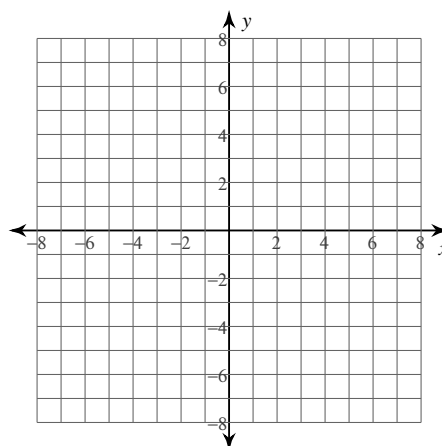


Identify the domain and range of each. Then sketch the graph.

13) $y = 4\sqrt{x-2} - 1$



14) $y = -\frac{3}{4}\sqrt{x-1} + 4$



Graphing Radicals

Date _____ Period _____

Identify the domain and range of each.

1) $y = \sqrt{x-2} + 5$

Domain: $x \geq 2$ Range: $y \geq 5$

2) $y = \sqrt{x+2} - 3$

Domain: $x \geq -2$ Range: $y \geq -3$

3) $y = \sqrt[3]{x+1} - 4$

Domain: { All real numbers. }

Range: { All real numbers. }

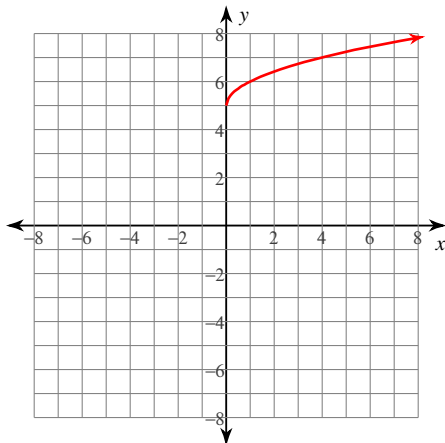
4) $y = \sqrt[3]{x-1} - 1$

Domain: { All real numbers. }

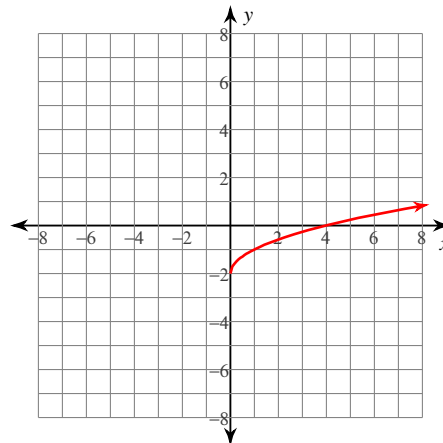
Range: { All real numbers. }

Sketch the graph of each function.

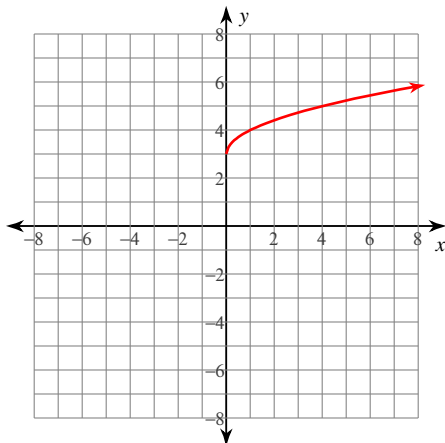
5) $y = \sqrt{x} + 5$



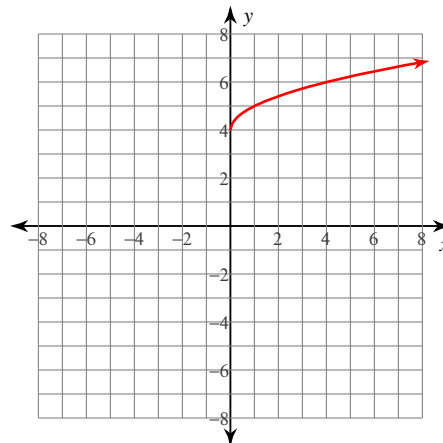
6) $y = \sqrt{x} - 2$



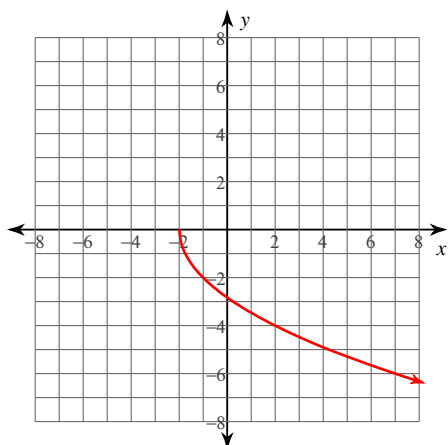
7) $y = 3 + \sqrt{x}$



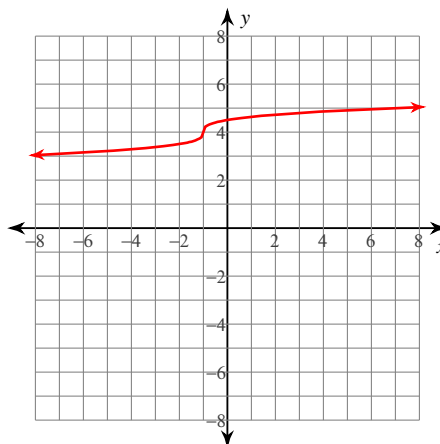
8) $y = \sqrt{x} + 4$



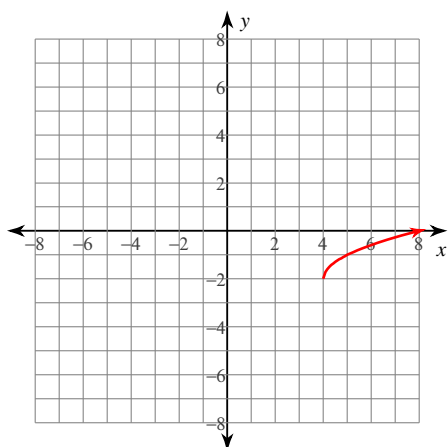
9) $y = -2\sqrt{x+2}$



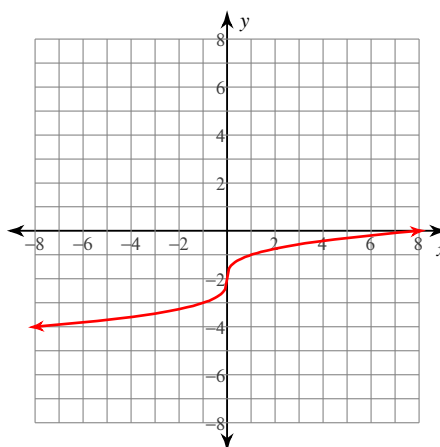
10) $y = \frac{1}{2}\sqrt[3]{x+1} + 4$



11) $y = \sqrt{x-4} - 2$

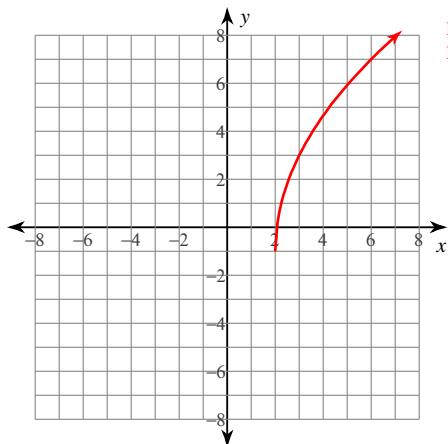


12) $y = -2 + \sqrt[3]{x}$



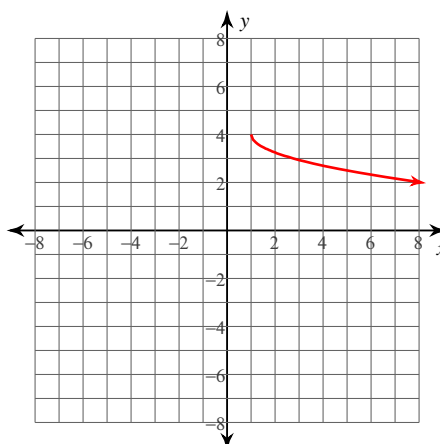
Identify the domain and range of each. Then sketch the graph.

13) $y = 4\sqrt{x-2} - 1$



Domain: $x \geq 2$
Range: $y \geq -1$

14) $y = -\frac{3}{4}\sqrt{x-1} + 4$



Domain: $x \geq 1$
Range: $y \leq 4$

Factoring Quadratic Expressions

Date_____ Period____

Factor each completely.

1) $x^2 - 7x - 18$

2) $p^2 - 5p - 14$

3) $m^2 - 9m + 8$

4) $x^2 - 16x + 63$

5) $7x^2 - 31x - 20$

6) $7k^2 + 9k$

7) $7x^2 - 45x - 28$

8) $2b^2 + 17b + 21$

9) $5p^2 - p - 18$

10) $28n^4 + 16n^3 - 80n^2$

11) $3b^3 - 5b^2 + 2b$

12) $7x^2 - 32x - 60$

13) $30n^2b - 87nb + 30b$

14) $9r^2 - 5r - 10$

15) $9p^2r + 73pr + 70r$

16) $9x^2 + 7x - 56$

17) $4x^3 + 43x^2 + 30x$

18) $10m^2 + 89m - 9$

Critical thinking questions:

19) For what values of b is the expression factorable?
 $x^2 + bx + 12$

20) Name four values of b which make the expression factorable:
 $x^2 - 3x + b$

Factoring Quadratic Expressions

Date _____ Period _____

Factor each completely.

1) $x^2 - 7x - 18$

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

2) $p^2 - 5p - 14$

$(p + 2)(p - 7)$

3) $m^2 - 9m + 8$

$(m - 1)(m - 8)$

4) $x^2 - 16x + 63$

$(x - 9)(x - 7)$

5) $7x^2 - 31x - 20$

$(7x + 4)(x - 5)$

6) $7k^2 + 9k$

$k(7k + 9)$

7) $7x^2 - 45x - 28$

$(7x + 4)(x - 7)$

8) $2b^2 + 17b + 21$

$(2b + 3)(b + 7)$

9) $5p^2 - p - 18$

$(5p + 9)(p - 2)$

10) $28n^4 + 16n^3 - 80n^2$

$4n^2(7n - 10)(n + 2)$

$$11) 3b^3 - 5b^2 + 2b$$

$$b(3b - 2)(b - 1)$$

$$12) 7x^2 - 32x - 60$$

$$(7x + 10)(x - 6)$$

$$13) 30n^2b - 87nb + 30b$$

$$3b(2n - 5)(5n - 2)$$

$$14) 9r^2 - 5r - 10$$

Not factorable

$$15) 9p^2r + 73pr + 70r$$

$$r(p + 7)(9p + 10)$$

$$16) 9x^2 + 7x - 56$$

Not factorable

$$17) 4x^3 + 43x^2 + 30x$$

$$x(x + 10)(4x + 3)$$

$$18) 10m^2 + 89m - 9$$

$$(m + 9)(10m - 1)$$

Critical thinking questions:

19) For what values of b is the expression factorable?

$$x^2 + bx + 12$$

13, 8, 7, -13, -8, -7

20) Name four values of b which make the expression factorable:

$$x^2 - 3x + b$$

Many answers. Ex: 0, 2, -4, -10, -18

Literal Equations

Date_____ Period____

Solve each equation for the indicated variable.

1) $g = 6x$, for x

2) $u = 2x - 2$, for x

3) $z = m - x$, for x

4) $g = ca$, for a

5) $u = x - k$, for x

6) $g = c + x$, for x

7) $u = \frac{k}{a}$, for a

8) $g = xc$, for x

9) $12am = 4$, for a

10) $-3x + 2c = -3$, for x

11) $am = n + p$, for a

12) $u = \frac{ak}{b}$, for a

13) $a - c = d - r$, for a

14) $xm = np$, for x

$$15) \ z = b + \frac{m}{a}, \text{ for } a$$

$$16) \ g = x - c + y, \text{ for } x$$

$$17) \ g = b - ca, \text{ for } a$$

$$18) \ g = ca - b, \text{ for } a$$

$$19) \ 2x + 4 = xg, \text{ for } x$$

$$20) \ g = \frac{1 + 2a}{a}, \text{ for } a$$

$$21) \ g = \frac{x - c}{x}, \text{ for } x$$

$$22) \ xm = x + z, \text{ for } x$$

$$23) \ u + ka = ba, \text{ for } a$$

$$24) \ u = kx + yx, \text{ for } x$$

$$25) \ u = 3b - 2a + 2, \text{ for } a$$

$$26) \ z = 9a - 9 - 3b, \text{ for } a$$

$$27) \ g = 4ca - 3ba, \text{ for } a$$

$$28) \ -3a - 3 = -2n + 3p, \text{ for } a$$

$$29) \ 4x = -4r + 2d, \text{ for } x$$

$$30) \ u = \frac{-2a - 3}{ka}, \text{ for } a$$

Literal Equations

Date_____ Period____

Solve each equation for the indicated variable.

1) $g = 6x$, for x

$$x = \frac{g}{6}$$

2) $u = 2x - 2$, for x

$$x = \frac{u + 2}{2}$$

3) $z = m - x$, for x

$$x = -z + m$$

4) $g = ca$, for a

$$a = \frac{g}{c}$$

5) $u = x - k$, for x

$$x = u + k$$

6) $g = c + x$, for x

$$x = g - c$$

7) $u = \frac{k}{a}$, for a

$$a = \frac{k}{u}$$

8) $g = xc$, for x

$$x = \frac{g}{c}$$

9) $12am = 4$, for a

$$a = \frac{1}{3m}$$

10) $-3x + 2c = -3$, for x

$$x = \frac{2c + 3}{3}$$

11) $am = n + p$, for a

$$a = \frac{n + p}{m}$$

12) $u = \frac{ak}{b}$, for a

$$a = \frac{ub}{k}$$

13) $a - c = d - r$, for a

$$a = c + d - r$$

14) $xm = np$, for x

$$x = \frac{np}{m}$$

$$15) z = b + \frac{m}{a}, \text{ for } a$$

$$a = \frac{m}{z - b}$$

$$17) g = b - ca, \text{ for } a$$

$$a = \frac{-g + b}{c}$$

$$19) 2x + 4 = xg, \text{ for } x$$

$$x = -\frac{4}{2 - g}$$

$$21) g = \frac{x - c}{x}, \text{ for } x$$

$$x = -\frac{c}{g - 1}$$

$$23) u + ka = ba, \text{ for } a$$

$$a = -\frac{u}{k - b}$$

$$25) u = 3b - 2a + 2, \text{ for } a$$

$$a = \frac{-u + 3b + 2}{2}$$

$$27) g = 4ca - 3ba, \text{ for } a$$

$$a = -\frac{g}{-4c + 3b}$$

$$29) 4x = -4r + 2d, \text{ for } x$$

$$x = \frac{-2r + d}{2}$$

$$16) g = x - c + y, \text{ for } x$$

$$x = g + c - y$$

$$18) g = ca - b, \text{ for } a$$

$$a = \frac{g + b}{c}$$

$$20) g = \frac{1 + 2a}{a}, \text{ for } a$$

$$a = \frac{1}{g - 2}$$

$$22) xm = x + z, \text{ for } x$$

$$x = \frac{z}{m - 1}$$

$$24) u = kx + yx, \text{ for } x$$

$$x = -\frac{u}{-k - y}$$

$$26) z = 9a - 9 - 3b, \text{ for } a$$

$$a = \frac{z + 9 + 3b}{9}$$

$$28) -3a - 3 = -2n + 3p, \text{ for } a$$

$$a = \frac{-3 + 2n - 3p}{3}$$

$$30) u = \frac{-2a - 3}{ka}, \text{ for } a$$

$$a = -\frac{3}{uk + 2}$$

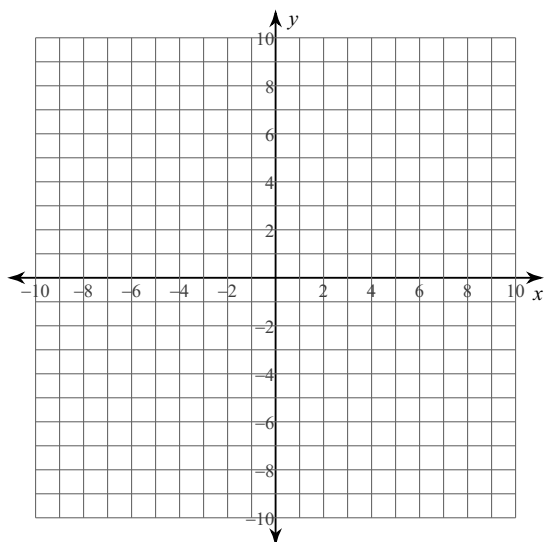
Systems of Equations - Mixed

Date _____ Class _____

Solve each system by graphing.

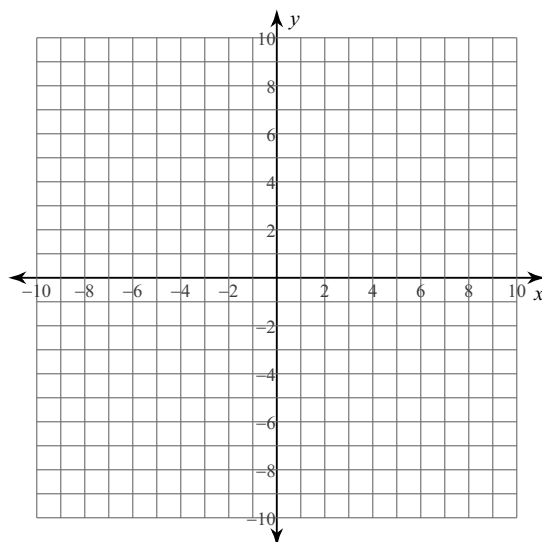
1) $y = -\frac{5}{6}x + 2$

$y = \frac{1}{6}x + 8$



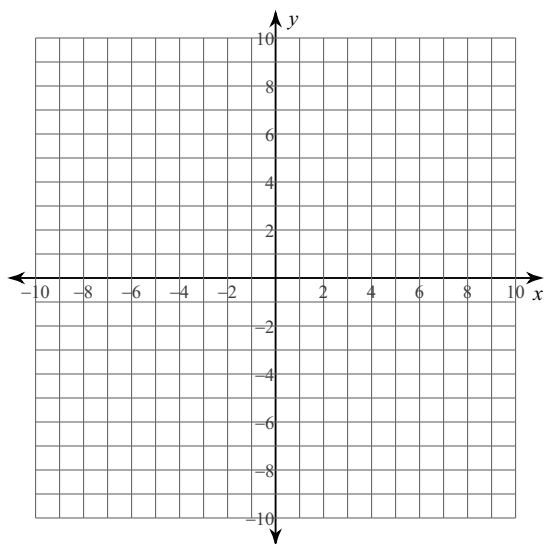
2) $y = \frac{2}{3}x + 1$

$y = -\frac{2}{9}x + 9$



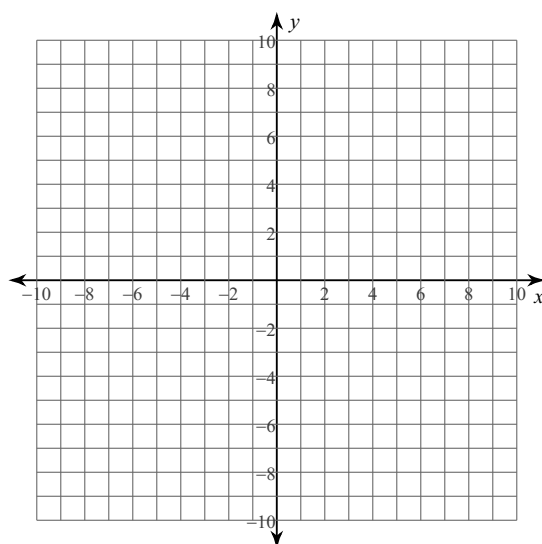
3) $y = 3x - 9$

$y = \frac{1}{2}x - 4$



4) $y = \frac{3}{2}x + 1$

$y = -\frac{1}{4}x - 6$



Solve each system by the method of your choice. For multiple choice questions, circle the correct answer.

5) $2x - 6y = 28$
 $-x - y = 14$

6) $5x + 14y = -10$
 $-8x + 7y = 16$

7) $-5x - 14y = -9$
 $-10x - 7y = 3$

8) $-x - 4y = 2$
 $9x + 4y = 14$

9) $8x + 8y = 8$
 $-8x + 2y = -28$

10) $-2x + y = 10$
 $-6x - y = 14$

11) $-2x + 2y = -16$
 $-3x - 2y = 11$

12) $-8x + 2y = 10$
 $-2x - 2y = 20$

13) $-7x + 6y = 2$
 $-7x + 6y = -4$

14) $7x - 3y = 29$
 $7x - 6y = 23$

15) $-6x + 4y = -2$
 $-4x + 4y = -8$

16) $3x - 3y = 27$
 $3x - 10y = 27$

17) $x + 2y = 5$
 $x + 2y = -1$

18) $y = 2x - 20$
 $5x + 5y = 20$

19) $y = 4x + 18$
 $-4x - y = 14$

20) $-2x - 5y = 9$
 $y = 1$

21) $y = -3x + 9$
 $-x + 3y = 17$

22) $y = 3x + 22$
 $y = 7$

23) $y = -4$
 $y = x - 12$

24) $y = -1$
 $y = x + 7$

25) $8x + 2y = 2$

$y = -5x + 3$

- A) $(-7, 7)$ B) $(2, -7)$
C) No solution D) $(7, 7)$

26) $y = 4x - 5$

$-x - 8y = 7$

- A) $(-6, 1)$ B) $(1, 1)$
C) $(-1, 1)$ D) $(1, -1)$

27) $-3x + 7y = -3$

$y = 2x - 2$

- A) $(8, 0)$ B) $(1, 0)$
C) $(-8, 0)$ D) $(0, -8)$

28) $-7x - 8y = 0$

$y = x$

- A) $(-4, 5)$ B) $(-5, 5)$
C) $(0, 0)$ D) $(4, 5)$

29) $-4x - 4y = 12$

$y = -4x - 12$

- A) No solution B) $(0, 3)$
C) $(-3, 0)$ D) $(3, 0)$

30) $6x - 10y = -16$

$x + 20y = 19$

- A) $(-1, 1)$ B) $(1, 1)$
C) $(-1, -5)$ D) $(1, -1)$

31) $9x - y = -3$

$-18x + 5y = 15$

- A) No solution B) $(0, 3)$
C) $(2, 2)$ D) $(2, -10)$

32) $3x - y = 24$

$-x - y = -8$

- A) $(-8, -8)$ B) $(-5, 8)$
C) $(8, 0)$ D) $(-8, 0)$

33) $3x + 8y = 8$

$5x + 8y = 24$

- A) $(-8, 2)$ B) $(8, -2)$
C) $(-2, 8)$ D) $(8, 2)$

34) $5x + 6y = 29$

$-x - 6y = -1$

- A) $(1, -7)$ B) $(7, -1)$
C) $(-1, 7)$ D) $(1, 7)$

35) $4x + 2y = -20$

$-4x - 3y = 26$

- A) $(-2, 4)$ B) $(-2, -6)$
C) $(-2, 6)$ D) $(-4, -2)$

36) $y = -7x - 4$

$y = -x + 2$

- A) $(-1, 3)$ B) $(1, 3)$
C) $(-3, 1)$ D) $(3, 1)$

Answers to Systems of Equations - Mixed (ID: 1)

- | | | | |
|-----------------|---------------|----------------|----------------|
| 1) $(-6, 7)$ | 2) $(9, 7)$ | 3) $(2, -3)$ | 4) $(-4, -5)$ |
| 5) $(-7, -7)$ | 6) $(-2, 0)$ | 7) $(-1, 1)$ | 8) $(2, -1)$ |
| 9) $(3, -2)$ | 10) $(-3, 4)$ | 11) $(1, -7)$ | 12) $(-3, -7)$ |
| 13) No solution | 14) $(5, 2)$ | 15) $(-3, -5)$ | 16) $(9, 0)$ |
| 17) No solution | 18) $(8, -4)$ | 19) $(-4, 2)$ | 20) $(-7, 1)$ |
| 21) $(1, 6)$ | 22) $(-5, 7)$ | 23) $(8, -4)$ | 24) $(-8, -1)$ |
| 25) B | 26) D | 27) B | 28) C |
| 29) C | 30) A | 31) B | 32) C |
| 33) B | 34) B | 35) B | 36) A |