Math 095 Quiz 1 Circle your answers Name:_____

1. Find the slopes of lines l_1 and l_2 that pass through the two given points.
   l_1: (0, 0) and (–2, 4); l_2:(3, 1) and (–1, –1)

   Then identify if the lines are parallel, perpendicular or neither. Graph the lines.

2. Write this equation in slope-intercept form. Then identify the slope and *y*-intercept. Graph the line.
$2x - 3y = 6$

3. Use the point-slope formula to write an equation of the line given the following information. Write the final answer in slope-intercept form. The slope is 3, and the line passes through the point (1, –1). Graph the line.

4. Find an equation for the line by any method given the following information:
The line passes through the point (2, 3) and is perpendicular to the line : $y = 5$.
Graph the line. (*Hint: graph the lines first*)

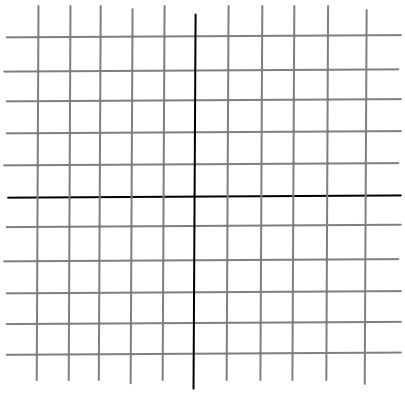
5. The electric bill charge for a certain utility company is \$0.095 per kilowatt-hour. The total cost, *y,* depends on the number of kilowatt-hours, *x*, according to the equation: $y = 0.095x$.

a. Which variable is the independent variable? cost or kilowatt-hour (circle one of these)

b. Which variable is the dependent variable? cost or kilowatt-hour (circle one of these)

c. Determine the cost of using 500 kilowatt-hours.

1



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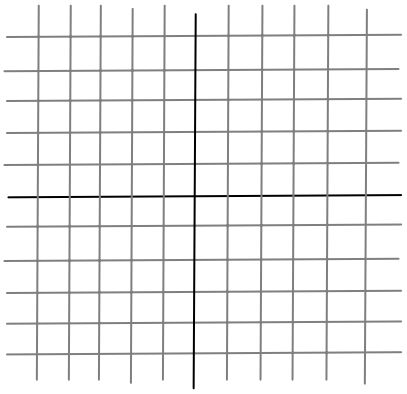

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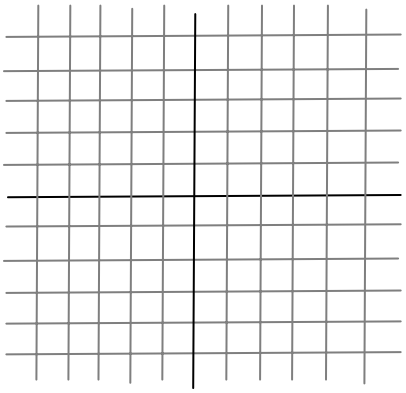

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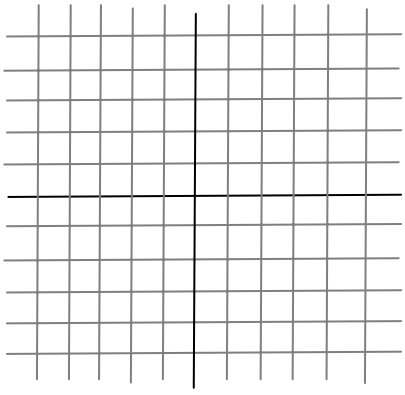


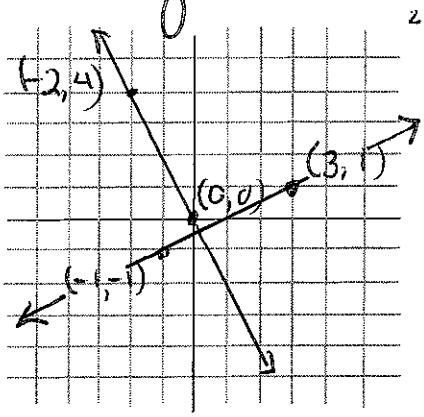
Math 095 Quiz 1 Circle your answers Name: Key

1. Find the slopes of lines l_1 and l_2 that pass through the two given points.
   l_1: (0, 0) and (−2, 4); l_2: (3, 1) and (−1, −1)
   x_1, y_1 x_2, y_2 x_1, y_1 x_2, y_2

$m_1 = \frac{y_2 - y_1}{x_2 - x_1} = \frac{4-0}{-2-0} = \frac{4}{-2} = -2$ $m_2 = \frac{-1-1}{-1-3} = \frac{-2}{-4} = \frac{1}{2}$

failed to reduce, didn't plot proper points

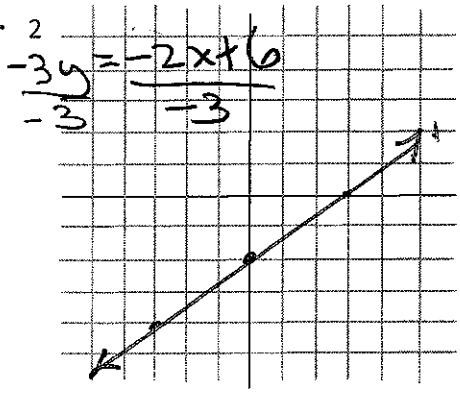
Then identify if the lines are parallel, perpendicular or neither. Graph the lines.



2. Write this equation in slope-intercept form. Then identify the slope and y-intercept. Graph the line.
   $2x - 3y = 6$
   $-2x \quad -2x$
   $-3y = -2x + 6$

$\frac{-3y}{-3} = \frac{-2x}{-3} + \frac{6}{-3}$ forgot that $= \rightarrow +$

$y = \frac{2}{3}x - 2$ (slope, y-int)



3. Use the point-slope formula to write an equation of the line given the following information. Write the final answer in slope-intercept form. The slope is 3, and the line passes through the point (1, −1). Graph the line.

switched x for y

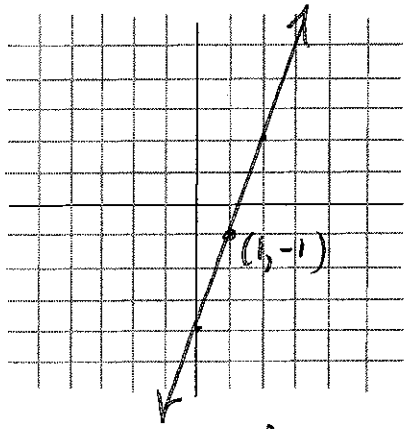
x_1, y_1

$3(x-1) = y-(-1)$

$3x - 3 = y + 1$

$-1 \quad -1$

$y = 3x - 4$

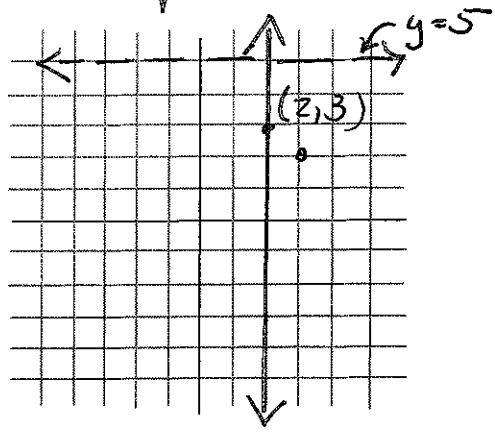


4. Find an equation for the line by any method given the following information:
   The line passes through the point (2, 3) and is perpendicular to the line : $y = 5$.
   Graph the line. (*Hint: graph the lines first*)

plotted wrong ←

took 5 for slope ←

$x = 2$



5. The electric bill charge for a certain utility company is \$0.095 per kilowatt-hour. The total cost, y, depends on the number of kilowatt-hours, x, according to the equation: $y = 0.095x$.

   a. Which variable is the independent variable? cost or kilowatt-hour (circle one of these)

switched

   b. Which variable is the dependent variable? cost or kilowatt-hour (circle one of these)

   c. Determine the cost of using 500 kilowatt-hours.

$0.095(500) =$ \$47.50

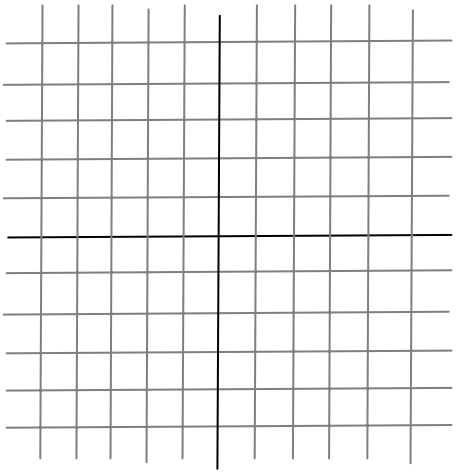
Quiz 2 Chapter 7 Solving systems of equations Name: _____

Solve by the method specified. Show all work, including check, for full credit Circle your answers

1. Solve this system by graphing:

$x + y = 5$

$y = \frac{3}{4}x - 2$



2. Solve this system by substitution:

$4x = 3y$

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

3. Solve this system by addition:

$6x - 2y = 6$

$4y = -2x + 2$

Show check of your solutions

Key

$\bar{x}=21.3$

Quiz 2 Chapter 7 Solving systems of equations Name: Key

Solve by the method specified. Show all work for full credit Circle your answers

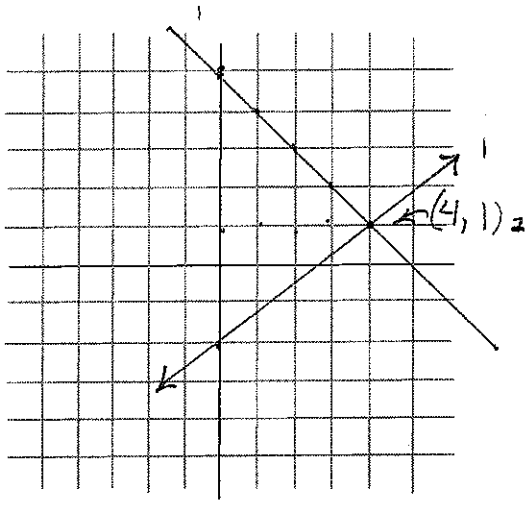
1. Solve this system by graphing:

$x + y = 5$

$y = \frac{3}{4}x - 2$

$y = -x + 5$ 2

(4, 1)



$(4)+(1) \stackrel{?}{=} 5$

$5 \stackrel{\checkmark}{=} 5$

$(1) \stackrel{?}{=} \frac{3}{4}(4) - 2$

$1 \stackrel{?}{=} 3 - 2 = 1$

$1 \stackrel{\checkmark}{=} 1$

check 1

2. Solve this system by substitution:

$4x = 3y$

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

$\frac{4x}{3} = y$ same slope different y-int inconsistent system of parallel lines

check 1

3 $4x = 3\left(\frac{4}{3}x + 2\right)$

$4x = 4x + 6$

$-4x \quad -4x$

$0 = 6$ no solution

1 2

3. Solve this system by addition:

$6x - 2y = 6$

$4y = 2x + 2$

$+2x \quad +2x$

$+2x + 4y = 2$

$12x - 4y = 12$

add 1 $\frac{14x}{14} = \frac{14}{14}$

solve 1 $x = 1$

$2(6x - 2y = 6)$

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

2 $Ax + By = C$

↑ multiply 2

(1, 0)

$6x - 2y = 6$

$-6x - 12y = 6$

$\frac{-14y}{-14} = \frac{0}{-14}$

$y = 0$

find other 1

$6(1) - 2(0) \stackrel{?}{=} 6$

$6 - 0 \stackrel{\checkmark}{=} 6$

$4(0) \stackrel{?}{=} -2(1) + 2$

$0 \stackrel{?}{=} -2 + 2$

$0 \stackrel{\checkmark}{=} 0$

check 1

Quiz 3 Chapter 8 Name: _____

Show all work. Circle your answers

1. Given $f(x) = -x^2 - 2x$

Find $f(0)$ Find $f(-2)$

2. Determine the domain of each function. Express the domain in interval notation

$$g(x) = \frac{2x}{x+2} \qquad h(x) = \sqrt{x-2}$$

3. Match each function with its graph.

Write the function name (letter) beside the small Roman numeral of graph.

$f(x) = x$

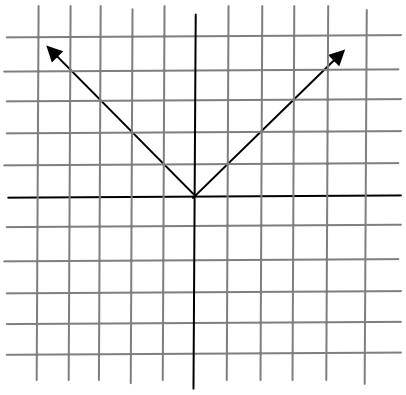
$g(x) = x^2$

$h(x) = x^3$

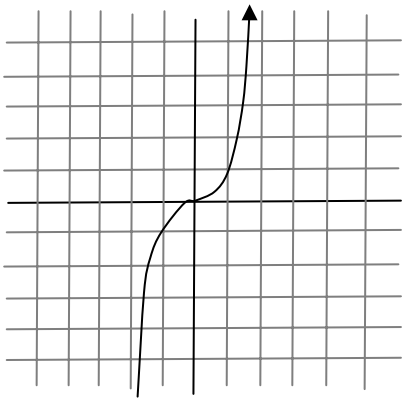
$s(x) = |x|$

$w(x) = \sqrt{x}$

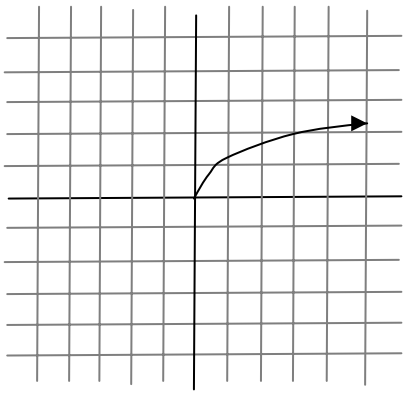
i_____



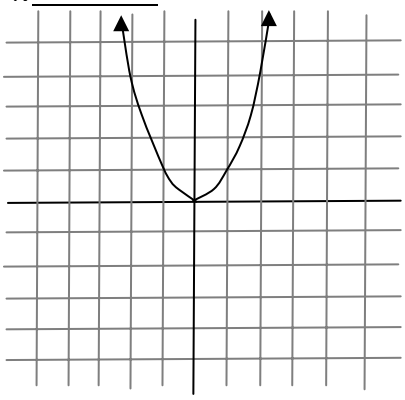
ii____



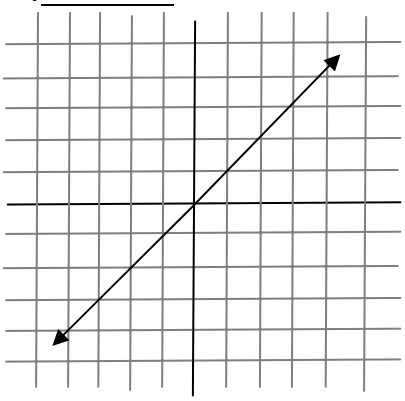
iii _____



iv_____



v_____



Quiz 3 Chapter 8 Name: Key

Show all work. Circle your answers

1. Given $f(x) = -x^2 - 2x$

(5) Find $f(0)$

$-(0)^2 - 2(0) = 0$

(5) Find $f(-2)$

$f(-2) = -(-2)^2 - 2(-2)$ (2)

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

2. Determine the domain of each function. Express the domain in interval notation

(5) $g(x) = \frac{2x}{x+2}$

$x + 2 \neq 0$

$-2 \quad -2$

$x \neq -2$ $(-\infty, -2) \cup (-2, \infty)$

(5) $h(x) = \sqrt{x-2}$

$x - 2 \geq 0$

$+2 \quad +2$

$x \geq 2$ $[2, \infty)$

3. Match each function with its graph.

Write the function name (letter) beside the small Roman numeral of graph.

Tea

$f(x) = x$

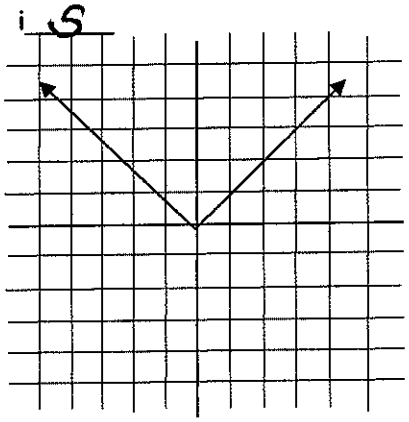
$g(x) = x^2$

$h(x) = x^3$

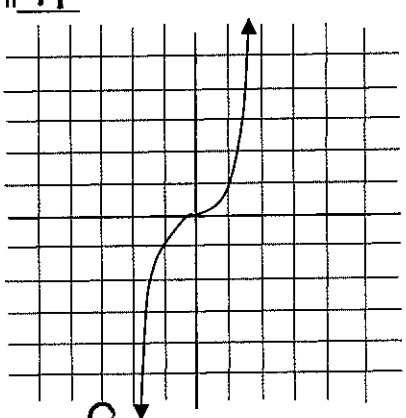
$s(x) = |x|$

$w(x) = \sqrt{x}$

i s



ii h



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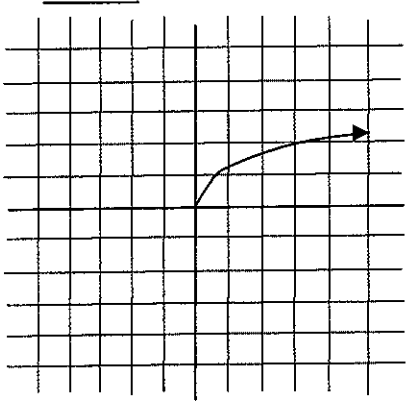
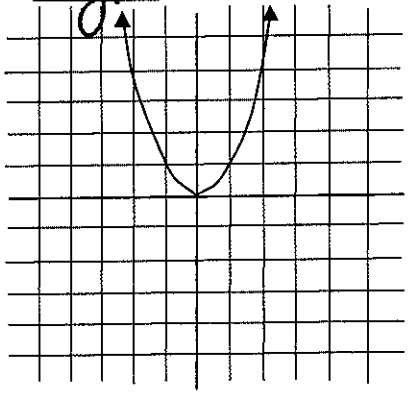
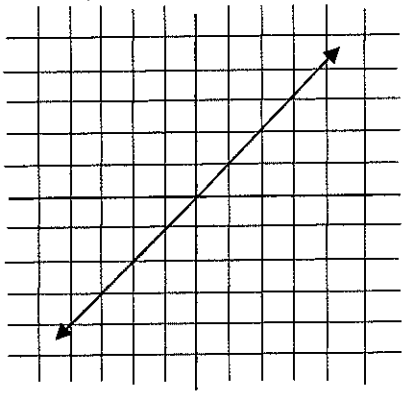


iv g



v f



Math 095 Quiz 4 Chapter 5 Name: _____

Show all work for full credit. Check your solutions. Circle your answers

Factor completely. Write a letter to the left of the problem number to indicate any of these types—
P: perfect square trinomial,
D: difference of 2 squares,
F: has a common factor greater than 1.

1. $4x^2 - 20x + 25$

2. $4 - 25y^2$

3. $8x^2 + 24x + 18$

For these problems, solve the equation using the zero product rule. Check your solutions in the original equation for full credit.

4. $7z^2 - 9z - 10 = 0$

5. $3(y^2 + 4) = 20y$

Math 095 Quiz 4 Chapter 5 Name: Key

Show all work for full credit. Check your solutions. Circle your answers

Factor completely. Write a letter to the left of the problem number to indicate any of these types—
P: perfect square trinomial,
D: difference of 2 squares,
F: has a common factor greater than 1.

P 1. $4x^2 - 20x + 25$

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

$-10x$
$-10x$
$4x^2 - 20x + 25$ ✓

D 2. $4 - 25y^2$

$(2-5y)(2+5y)$

$-10y$
$+10y$
$4 + 0 - 25y^2$ ✓

F 3. $8x^2 + 24x + 18$

$2(4x^2+12x+9)$

P $2(2x+3)(2x+3)$

$+6x$
$+6x$
$2(4x^2+12x+9)$
$8x^2+24x+18$ ✓

10.1
5.2

For these problems, solve the equation using the zero product rule. Check your solutions in the original equation for full credit.

4. $7z^2 - 9z - 10 = 0$

$(7z+5)(z-2)=0$

$5z$
$-14z$
$-9z$ ✓

$z-2=0$
$+2\ +2$
$z=2$

$7z+5=0$
$-5\ -5$
$7z=-5$
$z=\frac{-5}{7}$

$7(2)^2-9(2)-10=$
$28-18-10=0$ ✓

$7\left(\frac{-5}{7}\right)^2-9\left(\frac{-5}{7}\right)-10=\frac{25}{7}+\frac{45}{7}-\frac{70}{7}=\frac{70}{7}-\frac{70}{7}=0$ ✓

5. $3(y^2+4)=20y$

$3y^2+12=20y$
$-20y\ -20y$

$3y^2-20y+12=0$
$(3y-2)(y-6)=0$

$3y-2=0$
$+2\ +2$
$\frac{3y}{3}=\frac{2}{3}$
$y=\frac{2}{3}$

$y-6=0$
$+6\ +6$
$y=6$

$3\left[\left(\frac{2}{3}\right)\left(\frac{2}{3}\right)+4\right] =? 20\left(\frac{2}{3}\right)$

$3\left[\frac{4}{9}+\frac{36}{9}\right] =? \frac{40}{3}$

$3\left(\frac{40}{9}\right)=\frac{40}{3}=\frac{40}{3}$ ✓

$3[(6^2)+4] =? 20(6)$

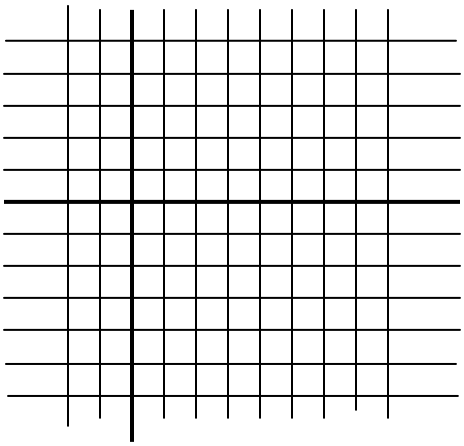
$3(36+4) =? 20(6)$

$3(40) =? 20(6)$

$120 = 120$ ✓

Math 095 Midterm Exam 1 Name: _____
Show all your work. Circle your answers.

1. Given these two points:(0, −2); (6, −4)
   a. Determine the slope of the line
   b. Write an equation of the line in slope-intercept form
   c. Graph the line



2. What is the slope of the line that passes through the pairs of points. (Hint: graph the points.)
   a. (−1, 2), (6, 2) b. (3, 2); (3, −2)

3. Write an equation in slope-intercept form for a line that passes through the point (6, 3) and has a slope of $\frac{3}{2}$

4. Determine if these lines are parallel, perpendicular or have some other relationship:

$$3x - 2y = 12 \qquad 2x + 3y = 9$$

Factor the following polynomials completely.
Check your factoring by F.O.I.L.

5. $y^2 - y - 12$

6. $8x^2 + x - 9$

7. $y^3 - 64$

8. $8x^2 + 6x + 1$

9. $x^4 - 16$

10. $25y - y^3$

Solve the following equations using the zero product rule
Check your solutions in the original equations.

11. $(x-9)(2x-4) = 0$

12. $14 = y(9-y)$

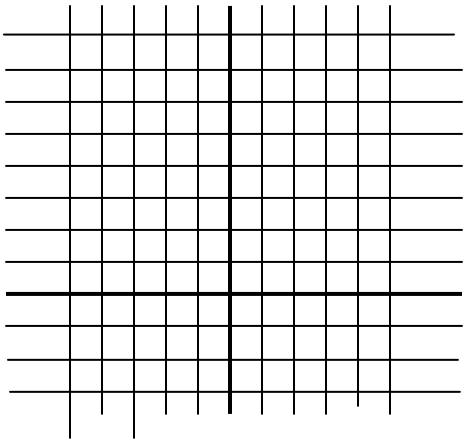
13. $x^3 - 9x = 0$

14. Determine if the ordered pair is a solution to the system:

$(-1,-1)$ $\quad 5x+7y=-12$ $\quad y=-2x+3$

15. Solve this system by graphing.
State solution as an ordered pair.

$4x-2y=-4$ $\quad 3x+y=2$



Solve the following systems by any method you prefer.
State answer as an ordered pair.

16. $8y=4x-16$ $\quad 9y+3x=-18$

17. $\frac{1}{3}x=-\frac{1}{6}y+\frac{13}{6}$ $\quad \frac{1}{3}(x-4)=y-5$

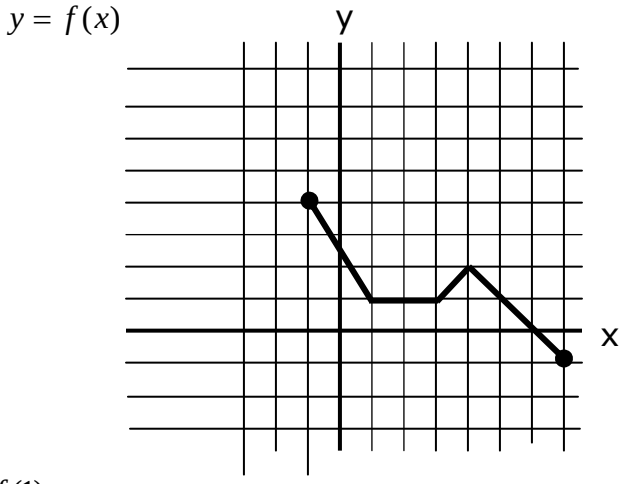
18. Find the function value for $f(-4)$ given $f(x) = 6x^2 - 4$

19. State the domain of these functions properly.

a. $g(x) = \sqrt{x+8}$

b. $\dfrac{x-10}{x+11}$

20. For questions A through E, refer to the graph below.
Use nearest whole value if it appears to be close to a grid line.



A. Find $f(1)$

B. Find $f(4)$

C. Write the domain of f

D. Write the range of f

E. Find the X-intercept of the function

Spring 2009

Math 095 Midterm Exam 1 Name: KEY

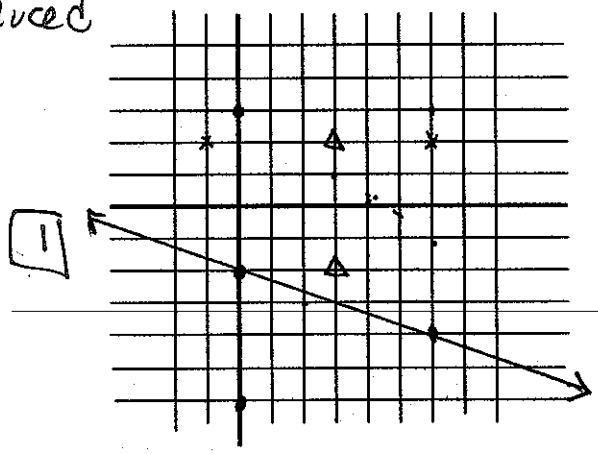
Show all your work. Circle your answers.

1. Given these two points: (0, −2); (6, −4) ← y-int
   a. Determine the slope of the line
   b. Write an equation of the line in slope-intercept form
   c. Graph the line

not reduced −1

[2] $m = \frac{-2-(-4)}{0-6} = \frac{2}{-6} = \left(-\frac{1}{3}\right)$

[2] $y = -\frac{1}{3}x - 2$



[1]

2. What is the slope of the line that passes through the pairs of points. (Hint: graph the points.)
   a. (−1, 2), (6, 2) ✗ ∅ not reduced −1
   b. (3, 2); (3, −2) △ undefined not determined −1

3. Write an equation in slope-intercept form for a line that passes through the point (6, 3) and has a slope of $\frac{3}{2}$ [2]

[2] $y - 3 = \frac{3}{2}(x-6)$

$y - 3 = \frac{3}{2}x - \frac{3 \cdot 6}{2}$

$y - 3 = \frac{3}{2}x - 9$

$+3 \quad +3$

$y = \frac{3}{2}x - 6$ [1]

no work
wrong y-int
−3

4. Determine if these lines are parallel, perpendicular or have some other relationship:

$3x - 2y = 12$

$+2y \quad -12 + 2y$

-12

$\frac{3x}{2} - \frac{12}{2} = \frac{2y}{2}$

$\frac{3}{2}x - 6 = y$

$2x + 3y = 9$

$-2x \quad -2x$

$\frac{3y}{3} = \frac{-2x}{3} + \frac{9}{3}$

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

slopes are negative reciprocals of one another

PERPENDICULAR

20

Math 095 Midterm 1 Spring 2009

KEY

Factor the following polynomials completely.
Check your factoring by F.O.I.L.

5. $y^2 - y - 12$ 1·12 6·2 8·4

$(y+3)(y-4)$

$y^2 - 4y + 3y - 12$

$y^2 - y - 12$ ✓

6. $8x^2 + x - 9$

$(8x+9)(x-1)$

$8x^2 - 8x + 9x - 9$

$8x^2 + x - 9$ ✓

7. $y^3 - 64$

$(y-4)(y^2+4y+16)$

$y^3 + 4y^2 + 16y - 4y^2 - 16y - 64$ ✓

8. $8x^2 + 6x + 1$

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

$8x^2 + 4x + 2x + 1$

$8x^2 + 6x + 1$ ✓

9. $x^4 - 16$

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

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

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

$(x^2-4)(x^2+4) = x^4 + 4x^2 - 4x^2 - 16$ ✓

10. $25y - y^3$

$y(25-y^2)$

$y(5-y)(5+y)$

$(5y-y^2)(5+y)$

$25y + 5y^2 - 5y^2 - y^3$ ✓

Solve the following equations using the zero product rule
Check your solutions in the original equations.

11. $(x-9)(2x-4) = 0$

$x - 9 = 0$
$+9 \quad +9$
$x = 9$

$(9-9)(2\cdot 9 - 4) =$
$0(16) = 0$ ✓

$2x - 4 = 0$
$+4 \quad +4$
$\frac{2x}{2} = \frac{4}{2}$
$x = 2$

$(2-9)(2\cdot 2 - 4) =$
$-7(0) = 0$ ✓

13. $x^3 - 9x = 0$

only 1 solution w/0 factors (4)
1 w/ factors (3)

$x(x^2-9) = 0$

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

$x = 0$ $\quad x = 3$ $\quad x = -3$

$0 - 0 = 0$ ✓ $\quad 27 - 27 = 0$ ✓ $\quad -27 + 27 = 0$ ✓

---

12. $14 = y(9-y)$

$14 = 9y - y^2$

$+y^2 - 9y \quad -9y + y^2$

$y^2 - 9y + 14 = 0$

$(y-7)(y-2) = 0$

$y - 7 = 0$
$+7 \quad +7$
$y = 7$

$7(9-7) =$
$7(2) = 14$ ✓

$y - 2 = 0$
$+2 \quad +2$
$y = 2$

$2(9-2) =$
$2(7) = 14$ ✓

Math 05 MIDTERM 1 spring 2009 KEY

14. Determine if the ordered pair is a solution to the system:

$(-1,-1)$ $\quad 5x+7y=-12$ $\quad y=-2x+3$

$5(-1)+7(-1)=-5-7=-12$ ✓ (2) $\quad (-1) \stackrel{?}{=} -2(-1)+3 = 2+3=5$ ✗ (2)

(1) NO

15. Solve this system by graphing.
State solution as an ordered pair.

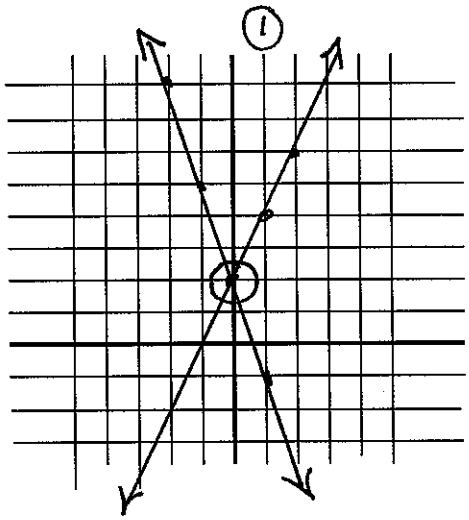
$4x-2y=-4$ $\quad 3x+y=2$

$-4x \quad -4x$ $\quad -3x \quad -3x$

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

(2) $y = 2x+2$ $\quad (0,2)$ (1)

$0-2\cdot 2=-4$ ✓ $\quad 0+2=2$ ✓



Solve the following systems by any method you prefer.
State answer as an ordered pair.

16. $8y=4x-16$ $\quad 9y+3x=-18$

$-4x \quad -4x$

$\frac{-4x+8y}{-4} = \frac{-16}{-4}$

$-1(x-2y=4)$ → $-x+2y=-4$

$\frac{3x}{3}+\frac{9y}{3}=\frac{-18}{3}$

$x+3y=-6$

$\frac{5y}{5}=\frac{-10}{5}$

$y=-2$

$8(-2)=4x-16$

$-16=4x-16$

$+16 \quad +16$

$0=4x$

$0=x$

$(0,-2)$

$9(-2)+3(0)=-18$ ✓

17. $6\left(\frac{1}{3}x=-\frac{1}{6}y+\frac{13}{6}\right)$ $\quad 3\left(\frac{1}{3}(x-4)=y-5\right)$

$2x=-y+13$

$-2x=-6y+22$

$0=-7y+35$

$+7y \quad +7y$

$\frac{7y}{7}=\frac{35}{7}$ $\quad y=5$

$x-4=3y-15$

$+4 \quad +4$

$-2(x=3y-11)$

$\frac{1}{3}(x-4)=5-5$

$\frac{1}{3}x-\frac{4}{3}=0$

$+\frac{4}{3} \quad +\frac{4}{3}$

$\left(\frac{1}{3}x=\frac{4}{3}\right)3$

$x=4$

$(4,5)$

$\frac{1}{3}(4) \stackrel{?}{=} -\frac{1}{6}(5)+\frac{13}{6}$

$\frac{4}{3} \stackrel{?}{=} \frac{-5}{6}+\frac{13}{6}=\frac{8}{6}=\frac{4}{3}$ ✓

Math 095 Midterm 1 Spring 2009 KEY

18. Find the function value for $f(-4)$ given $f(x) = 6x^2 - 4$

$f(-4) = 6(-4)^2 - 4 = 6(16) - 4 = 96 - 4 = 92$

19. State the domain of these functions properly.

a. $g(x) = \sqrt{x+8}$

$8 + x \geq 0$

$-8 \quad -8$

$x \geq -8$

$[-8, \infty)$

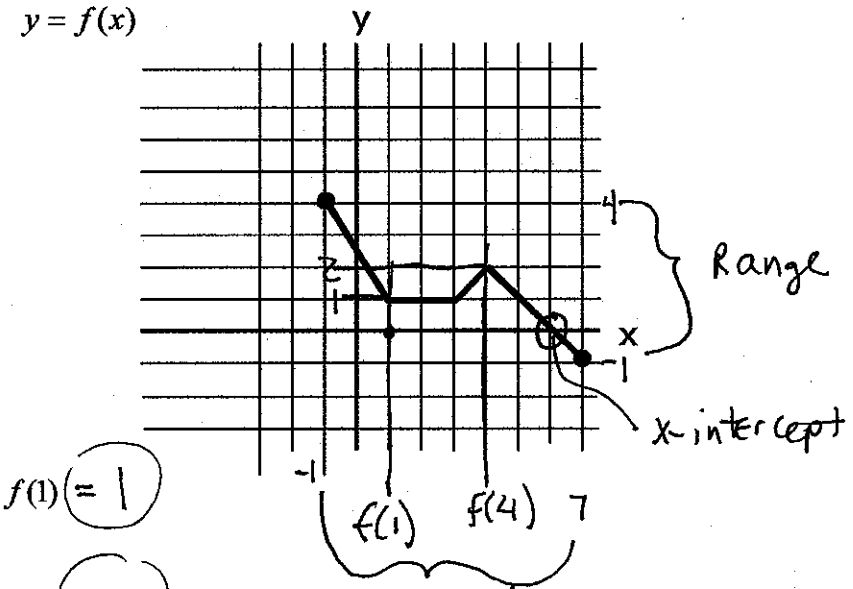
b. $\frac{x-10}{x+11}$

$x + 11 \neq 0$

$-11 \quad -11$

$x \neq -11 \quad (-\infty, -11) \cup (-11, \infty)$

20. For questions A through E, refer to the graph below.
Use nearest whole value if it appears to be close to a grid line.



A. Find $f(1)$ $= 1$

B. Find $f(4)$ $= 2$

C. Write the domain of f $[-1, 7]$

D. Write the range of f $[-1, 4]$

E. Find the X-intercept of the function $= 6$

$(6, 0)$

Math 095 Quiz 5 Name: _____

Show all of your work. **Circle your answers.**

1. Which of the following expressions are equal to –1? (circle them)

   a. $\frac{2-x}{x-2}$

   b. $\frac{-x-7}{x+7}$

   c. $\frac{x-5}{x+5}$

   d. $\frac{x^2-4}{4-x^2}$

2. Simplify this expression to the lowest terms.

$$\frac{x-3}{(2x-5)(x-3)}$$

3. Simplify this expression to the lowest terms.

$$\frac{3m^2-12m-15}{9m+9}$$

4. Multiply these expressions. Reduce to lowest terms.

$$\frac{8}{x^2-25} \cdot \frac{3x+15}{16}$$

5. Divide these expressions. Reduce to lowest terms.

$$\frac{4c^2+4c}{c^2-25} \div \frac{8c}{c^2-5c}$$

6. Solve this equation for t. Check your solution.

$$\frac{t+1}{3} - \frac{t-1}{6} = \frac{1}{6}$$

Math 095 Quiz 5 Name: Key

Show all of your work. **Circle your answers.**

1. Which of the following expressions are equal to –1? (circle them)

a. $\frac{2-x}{x-2}$ $\quad -1(-2+x)$

b. $\frac{-x-7}{x+7}$ $\quad -1(x+7)$

c. $\frac{x-5}{x+5}$ $\quad \frac{(x-2)(x+2)}{(2-x)(2+x)}$

d. $\frac{x^2-4}{4-x^2}$ $\quad -1(-x^2+4)$

4

2. Simplify this expression to the lowest terms.

$$\frac{x-3}{(2x-5)(x-3)}$$

$$\frac{1}{2x-5}$$

4

3. Simplify this expression to the lowest terms.

$3(m+1)(m-5)$

$3(m^2-4m-5)$

$$\frac{3m^2-12m-15}{9m+9}$$

$3 \cdot 3(m+1)$

$$\frac{m-5}{3}$$

4

4. Multiply these expressions. Reduce to lowest terms.

$$\frac{8}{x^2-25} \cdot \frac{3x+15}{16}$$

$(x+5)(x-5)$ $\quad 8 \cdot 2$ $\quad 3(x+5)$

$$\frac{3}{2(x-5)}$$

$$= \frac{3}{2x-10}$$

4

5. Divide these expressions. Reduce to lowest terms.

$$\frac{4c^2+4c}{c^2-25} \div \frac{8c}{c^2-5c}$$

6

$$\frac{4c(c+1)}{(c+5)(c-5)} \cdot \frac{c(c-5)}{8c2}$$

$$\frac{c(c+1)}{2(c+5)} \qquad \frac{c^2+c}{2c+10}$$

6. Solve this equation for t. Check your solution.

4

$$6\left(\frac{t+1}{3} - \frac{t-1}{6}\right) = \left(\frac{1}{6}\right)6$$

$2(t+1)-(t-1)=1$

$2t+2-t+1=1$

$-2 \quad -1 \quad -3$

$t = -2$

$$\frac{(-2)+1}{3} - \frac{(-2)-1}{6} = \frac{-1}{3} + \frac{1}{2} = \frac{1}{6}$$ ✓

Math 095 Quiz 5 Name: _____

Show all of your work. **Circle your answers**.

1. Which of the following expressions are equal to –1? (circle them)

   a. $\dfrac{-2-x}{x-2}$

   b. $\dfrac{7-x}{x+7}$

   c. $\dfrac{x-5}{5-x}$

   d. $\dfrac{x^2-9}{9-x^2}$

2. Simplify this expression to the lowest terms.

$$\frac{2x-5}{(2x-5)(x-3)}$$

3. Simplify this expression to the lowest terms.

$$\frac{4x^2-16x-20}{8x+8}$$

4. Multiply these expressions. Reduce to lowest terms.

$$\frac{10}{4x^2-1} \bullet \frac{10x+5}{8}$$

5. Divide these expressions. Reduce to lowest terms.

$$\frac{3x^2-6x}{x^2-16} \div \frac{6x}{x^2-4x}$$

6. Solve this equation for y. Check your solution.

$$\frac{4y+2}{3} - \frac{7}{6} = -\frac{y}{6}$$

Math 095 Quiz 5 makeup Name: Key

Show all of your work. **Circle your answers.**

1. Which of the following expressions are equal to -1? (circle them)

a. $\frac{-2-x}{x-2}$ $\frac{-1(2+x)}{2-x}$

b. $\frac{7-x}{x+7} = \frac{7-x}{7+x} = -1\left(\frac{x-7}{x+7}\right)$

c. $\frac{x-5}{5-x}$

d. $\frac{x^2-9}{9-x^2}$

2. Simplify this expression to the lowest terms.

$$\frac{2x-5}{(2x-5)(x-3)} = \frac{1}{x-3}$$

3. Simplify this expression to the lowest terms.

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

$$\frac{4x^2-16x-20}{8x+8}$$

$8(x+1)$

$$\frac{4(x+1)(x-5)}{8(x+1)} = \frac{x-5}{2}$$

4. Multiply these expressions. Reduce to lowest terms.

$$\frac{5\cdot 2}{10}\cdot\frac{5(2x+1)}{10x+5}\cdot\frac{2}{4x^2-1} = \frac{25}{(2x-1)4}$$

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

5. Divide these expressions. Reduce to lowest terms.

$$\frac{3x^2-6x}{x^2-16}\div\frac{6x}{x^2-4x}$$ flip

$$\frac{3x(x-2)}{(x-4)(x+4)}\cdot\frac{x(x-4)}{2\cdot 3x} = \frac{x(x-2)}{2(x+4)}$$

6. Solve this equation for y. Check your solution.

$$\frac{4y+2}{3}-\frac{7}{6}=-\frac{y}{6}$$

$6\left(\frac{4y+2}{3}-\frac{7}{6}=-\frac{y}{6}\right)$

$\frac{2\cdot 6(4y)}{6}+\frac{2\cdot 6}{6}-7=y$

$8y-3=y$

$-y \quad +3 \quad -y+3$

$\frac{7y}{7}=\frac{+3}{7}$ $y=\frac{+3}{7}$

Math 095 Quiz 6 Name: _____

Show all your work **Circle your answers**

Simplify the expressions.

1. $\sqrt[4]{\frac{1}{81}}$

2. $\sqrt{40x^3y^4z^7}$

3. $\left(\frac{1}{25}\right)^{1/2}$

Rewrite the expression with rational exponents.

4. $\sqrt[3]{16y^4}$

Add and subtract as indicated.

5. $4\sqrt{5}-3\sqrt{5}+2\sqrt{5}$

6. $7\cdot\sqrt{72}-\sqrt{8}+4\sqrt{50}$

Multiply the radicals and simplify the answers.

7. $\left(\sqrt{y}+3\right)\left(\sqrt{y}-3\right)$

8. $\left(11\sqrt{x}+4\sqrt{y}\right)\left(\sqrt{x}+\sqrt{y}\right)$

Math 095 Quiz 6 Name: Key

Show all your work **Circle your answers**

Simplify the expressions.

2 1. $\sqrt[4]{\frac{1}{81}}$

$\frac{\sqrt[4]{1}}{\sqrt[4]{81}} = \frac{1}{3}$

3 2. $\sqrt{40x^3y^4z^7}$

$4 \cdot 10$, $10 = 2 \cdot 5$

$\sqrt{2^2 \cdot 10 \cdot x^2 \cdot x (y^2)^2 (z^3)^2 \cdot z}$

$2xy^2z^3\sqrt{10xz}$

2 3. $\left(\frac{1}{25}\right)^{1/2}$

$\frac{\sqrt{1}}{\sqrt{25}} = \frac{1}{5}$

Rewrite the expression with rational exponents.

3 4. $\sqrt[3]{16y^4}$

$16 = 4 \cdot 4$, $4 = 2 \cdot 2$

$\sqrt[3]{2^3 \cdot 2 \cdot y^3 \cdot y}$

$2y\sqrt[3]{2y}$

$2^{\frac{4}{3}} y^{\frac{4}{3}}$

$(2y)^{\frac{4}{3}}$

$2y(2y)^{\frac{1}{3}}$

$2y\,2^{\frac{1}{3}} y^{\frac{1}{3}}$

Add and subtract as indicated.

3 5. $4\sqrt{5} - 3\sqrt{5} + 2\sqrt{5} = \sqrt{5}(4-3+2) = 3\sqrt{5}$

$3\sqrt{5}$

4 6. $7 \cdot \sqrt{72} - \sqrt{8} + 4\sqrt{50}$

$72 = 9 \cdot 8$, $9 = 3 \cdot 3$, $8 = 4 \cdot 2$, $4 = 2 \cdot 2$

$50 = 2 \cdot 25$, $25 = 5 \cdot 5$

$7\sqrt{3^2 2^2 \cdot 2} - \sqrt{2^2 \cdot 2} + 4\sqrt{5^2 \cdot 2}$

$7 \cdot 3 \cdot 2\sqrt{2} - 2\sqrt{2} + 4 \cdot 5\sqrt{2}$

$42\sqrt{2} - 2\sqrt{2} + 20\sqrt{2} = 60\sqrt{2}$

Multiply the radicals and simplify the answers.

4 7. $(\sqrt{y} + 3)(\sqrt{y} - 3)$

$y - 9$

4 8. $(11\sqrt{x} + 4\sqrt{y})(\sqrt{x} + \sqrt{y})$

$11x + 11\sqrt{xy} + 4\sqrt{xy} + 4y$

$11x + 15\sqrt{xy} + 4y$

Math095 Quiz 7 Name: _____

Solve the radical equations, if possible.
Check your possible solutions.

1. $\sqrt{8y-4}+8=2$

2. $\sqrt{5y-9}=\sqrt{5y}-3$

3. $\sqrt[4]{3w+7}-\sqrt[4]{7w-5}=0$

4. Rewrite this expression in terms of *i* and simplify

$$\frac{-\sqrt{-90}}{\sqrt{10}}$$

Simplify the powers of i

5. a. i^{27}

b. i^{38}

c. i^{49}

d. i^{16}

Perform the indicated operations.
Write final answer in $a+bi$ form

6. $(1+3i)+(4-3i)$

7. $(3i+5)(3i-5)$

8. $(2+3i)-(1-4i)$

Math095 Quiz 7 Name: Key

Solve the radical equations, if possible.
Check your possible solutions.

3 1. $\sqrt{8y-4}+8=2$

$-8\ -8$ (1)

$\sqrt{8y-4}=-6$ not real

$(\sqrt{8y-4})^2=36$ (1)

$8y-4=36$

$+4\ +4$

$8y=40$ (1)

$y=5$

$\sqrt{8(5)-4}+8=?2$

$\sqrt{36}+8=?2$

$6+8\neq 14$

4 2. $(\sqrt{5y-9})^2=(\sqrt{5y}-3)^2$ $(5y-3)$

(1) $5y-9=5y-6\sqrt{5y}+9$

$-5y\ -9\ -5y\ \ -9$

(1) $-18=-6\sqrt{5y}$

$-6\ \ -6$

(1) $3^2=(\sqrt{5y})^2$

$\frac{9}{5}=\frac{5y}{5}$

$y=\frac{9}{5}$ → $\sqrt{5(\frac{9}{5})}-9=0$

$\sqrt{5\frac{9}{5}}-3$

$=\sqrt{9}-3$

$=3-3=0$ ✓

3 3. $\sqrt[4]{3w+7}-\sqrt[4]{7w-5}=0$

$+\sqrt[4]{7w-5}\ \ +\sqrt[4]{7w-5}$ (1)

$\sqrt[4]{3w+7}=\sqrt[4]{7w-5}$

$3w+7=7w-5$

$-3w+5\ \ -3w+5$

$\frac{12}{4}=\frac{4w}{4}$

$3=w$ (1)

$\sqrt[4]{3(3)+7}=?\sqrt[4]{7(3)-5}$

$\sqrt[4]{16}=\sqrt[4]{16}$ ✓

4 4. Rewrite this expression in terms of i and simplify

$\frac{-\sqrt{-90}}{\sqrt{10}}=\frac{-i\sqrt{9}\sqrt{10}}{\sqrt{10}}$ (1)

$-i\sqrt{9}$ (1)

$-i3$ (1)

4 5. Simplify the powers of i

a. i^{27} $-i$

b. i^{38} -1

c. i^{49} i

d. i^{16} 1

3 6. $(1+3i)+(4-3i)$ (1)

S combine like (1)

3 7. $(3i+5)(3i-5)$

$9i^2-25=-9-25=-34$ (1) (1) (1)

3 8. $(2+3i)-(1-4i)$ distribute (1)

$2+3i-1+4i$ combine (1)

$1+7i$ result (1)

Math 095 Exam 2 Name: _____

Show all your work **Circle your answers!!**

Solve these equations.
Check your solutions. Show check on this side of page

1. $\frac{2}{x-2} - \frac{x}{x+2} = -1$

2. $\sqrt{3y-7} = 2 - \sqrt{3y+1}$

3. $7 = 5 + \sqrt[4]{x+3}$

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

5. Simplify in terms of *i*

a. $-\sqrt{-16}$

b. $\sqrt{-98}$

Simplify the expressions

6. $\sqrt{-75}\cdot\sqrt{-3}$

7. $\dfrac{4-\sqrt{-25}}{2}$

8. Simplify the power of *i*

a. i^{19}

b. i^{29}

c. i^{76}

9. Divide these expressions. Reduce to lowest terms.

$$\frac{4y^2-9}{3+2y}\div\frac{2y^2-13y+15}{5-y}$$

For these problems, simplify and answer in *a+bi* form

10. Multiply: $(2-6i)(1+3i)$

11. Subtract: $(1-3i)-(-2+4i)$

12. Divide: $\dfrac{4-3i}{5+i}$

Math 095 Exam 2 Name: Key

Show all your work **Circle your answers!!**

Solve these equations.
Check your solutions.

Show check on this side of page

1. $\frac{2}{x-2} - \frac{x}{x+2} = -1$

LCD $= (x-2)(x+2) = x^2-4$ [2]

$2(x+2) - x(x-2) = -1(x^2-4)$ [2]

$2x+4-x^2+2x = -x^2+4$ [2]

$-4+x^2 \quad +x^2-4$ [1]

$4x = 0$ $x = 0$ [1]

[2] $\frac{2}{(0)-2} - \frac{(0)}{(0)+2} = -1-0 = -1$ ✓

2. $\sqrt{3y-7} = 2 - \sqrt{3y+1}$

[2] $\left(\sqrt{3y-7}\right)^2 = (2-\sqrt{3y+1})(2-\sqrt{3y+1})$

$3y-7 = 4 - 4\sqrt{3y+1} + 3y + 1$

[1] $-3y \quad -5 \quad -4 \quad -3y-1$

[1] $\frac{-12}{-4} = \frac{-4\sqrt{3y+1}}{-4} \Rightarrow 3 = \sqrt{3y+1} \Rightarrow 9 = 3y+1$ [1]

$-1 \quad -1$

$8 = 3y \Rightarrow y = \frac{8}{3}$ [1]

[1] left $\sqrt{3\left(\frac{8}{3}\right)-7} = \sqrt{8-7} = \sqrt{1} = 1$

[1] right $2-\sqrt{3\left(\frac{8}{3}\right)+1} = 2-\sqrt{8+1} = 2-\sqrt{9} = 2-3 = -1$

does not check

3. $7 = 5 + \sqrt[4]{x+3}$

$-5 \quad -5$

$2 = \sqrt[4]{x+3}$

$16 = x+3$

$-3 \quad -3$

$13 = x$

$5 + \sqrt[4]{13+3} = 5 + \sqrt[4]{16} = 5+2 = 7$ ✓

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

$+2 \quad +2$

$(y-1)^{\frac{1}{2}} = 3$

$y-1 = 9$

$+1 \quad +1$

$y = 10$

$(y-1)^{\frac{1}{2}} - 2 = [(10)-1]^{\frac{1}{2}} - 2 = 9^{\frac{1}{2}} - 2 = 3-2 = 1$ ✓

35

5. Simplify in terms of *i*

a. $-\sqrt{-16}$

$-i\sqrt{16} = -i\,4 = -4i$ (2) (2)

b. $\sqrt{-98}$ $= i\sqrt{49 \cdot 2}$ (2) (2)

$= 7i\sqrt{2}$

Simplify the expressions

6. $\sqrt{-75} \cdot \sqrt{-3}$

(2) $i\sqrt{25 \cdot 3} \cdot i\sqrt{3}$ (2)

(1) $i^2 5\sqrt{3 \cdot 3}$ (2)

(1) $-1(5)(3) = -15$ (2)

7. $\dfrac{4-\sqrt{-25}}{2}$

(2) $\dfrac{4-i5}{2}$ $2-5i$

$\dfrac{4}{2} - \dfrac{5i}{2}$ (2)

$2 - \dfrac{5i}{2}$

8. Simplify the power of *i*

(2) a. i^{19} $i^{16} \cdot i^3 = -i$

(2) b. i^{29} $i^{28} \cdot i = i$

(2) c. $i^{76} = 1$

9. Divide these expressions. Reduce to lowest terms.

$\dfrac{4y^2-9}{3+2y} \div \dfrac{2y^2-13y+15}{5-y}$ (2)

$\dfrac{(2y-3)(2y+3)}{(2y+3)} \cdot \dfrac{-1(y-5)}{(2y-3)(y-5)} = -1$ (2)

(1) (2) (2)

For these problems, simplify and answer in *a+bi* form

10. Multiply: $(2-6i)(1+3i)$

$2+6i-6i-18i^2 = 2+18 = 20$ (2)

-1 (3)

3 $20+0i$ (2)

11. Subtract: $(1-3i)-(-2+4i)$

$1-3i+2-4i = 3-7i$

(2) (2)

12. Divide: $\dfrac{4-3i}{5+i}$ (2) $\dfrac{(5-i)}{(5-i)} = \dfrac{20-19i+3i^2}{25+1}$ (2) (2)

$\dfrac{20-3-19i}{26} = \dfrac{17}{26} - \dfrac{19i}{26}$

(2) (2)

Math 095 Quiz 8 Name: _____

Solve the equations **using the square root property**.
Show all of your work. Check your solutions. Circle your answers.

1. $y^2 = 16$ Show check on this side of page

2. $-4x^2 = 144$

3. $(4y - 20)^2 - 5 = 0$

4. $(x + 8)^2 = -9$

5. $8y^2 - 3 = 5$

Math 095 Quiz 8 Name: Key

Solve the equations **using the square root property**.
Show all of your work. Check your solutions. Circle your answers.

1. $y^2 = 16$

$\sqrt{y^2} = \pm\sqrt{16}$

$y = \pm 4$

Show check on this side of page

$(4)^2 = 16 \quad (4)^2 = 16$

---

2. $\frac{-4x^2}{-4} = \frac{144}{-4}$

$\sqrt{x^2} = \pm\sqrt{\frac{144}{4}} = \pm\frac{12}{2} = \pm 6i$

$-4(6i)^2 = -4(-1)36 = 144$

---

3. $(4y - 20)^2 - 5 = 0$

$+5 \quad +5$

$(4y - 20)^2 = 5$

$4y - 20 = \pm\sqrt{5}$

$+20 \quad +20$

$\frac{4y}{4} = \frac{20}{4} \pm \frac{\sqrt{5}}{4}$

$y = 5 \pm \frac{\sqrt{5}}{4}$

$\left[4\left(5 \pm \frac{\sqrt{5}}{4}\right) - 20\right]^2 - 5 =$

$\left[20 \pm \sqrt{5} - 20\right]^2 - 5 =$

$(\pm\sqrt{5})^2 - 5 = \quad 5 - 5 = 0$ ✓

---

4. $(x + 8)^2 = -9$

$\sqrt{(x+8)^2} = \pm\sqrt{-9}$

$x + 8 = \pm 3i$

$-8 \quad -8$

$x = -8 \pm 3i$

$\left[(-8 \pm 3i) + 8\right]^2 = (\pm 3i)^2 = -9$ ✓

---

5. $8y^2 - 3 = 5$

$+3 \quad +3$

$\frac{8y^2}{8} = \frac{8}{8}$

$y^2 = 1$

$y = \pm 1$

$8(1)^2 - 3 = 8 - 3 = 5$ ✓

Math 095 Quiz 9 Name: _____

Solve these quadratic equations by any method. Reduce to lowest terms. Simplify radicals. Circle your answers.

I will verify your recall of the quadratic equation for one point on this quiz. (If you know you know it, don't ask. If you aren't sure, for minus 1 from your quiz score, I will see if you are correct. No additional points off if I fix it for you because you did not recall it correctly. Do this right now, so you can proceed with the quiz problems.)

1. $x^2 - 6x = -7$

2. $3y^2 - 2y + 5 = 0$

3. $3x(x-3) = x - 8$

4. $\frac{y}{8} - \frac{2}{y} = \frac{3}{4}$

5. The landing distance, D, in feet, that a plane will travel on a runway after touchdown is a function of the initial landing speed, v, in $\frac{\text{ft}}{\text{sec}}$. For a certain plane, this function is:

$$D(v) = \frac{1}{10}v^2 - 3v + 22$$

a) Find the landing distance for a plane that has an initial landing speed of $v = 180\frac{\text{ft}}{\text{sec}}$

b) Find the maximum initial landing speed for the plane landing on a runway that is 1500 feet long

Math 095 Quiz 9 Name: Key 2009-0601

Solve these quadratic equations by any method. Reduce to lowest terms. Simplify radicals. Circle your answers.

I will verify your recall of the quadratic equation for one point on this quiz. (If you know you know it, don't ask. If you aren't sure, for minus 1 from your quiz score, I will see if you are correct. No additional points off if I fix it for you because you did not recall it correctly. Do this right now, so you can proceed with the quiz problems.)

1. $x^2 - 6x = -7$ +9

$x^2 - 6x + 9 = 2$

$(x-3)^2 = 2$

$x - 3 = \pm\sqrt{2}$

$x = 3 \pm \sqrt{2}$

2. $3y^2 - 2y + 5 = 0$

$a=3 \quad b=-2 \quad c=5$

$\frac{2 \pm \sqrt{4-60}}{6} = \frac{2 \pm \sqrt{-56}}{6} =$

$y = \frac{1}{3} \pm \frac{i\sqrt{14}}{3}$

3. $3x(x-3) = x - 8$

$3x^2 - 9x = x - 8$

$-x+8 \quad -x+8$

$3x^2 - 10x + 8 = 0$

$-4x \quad -6x \quad -10x$

$(3x-4)(x-2) = 0$

$3x-4=0 \quad x-2=0$

$+4 \quad +4 \quad +2 \quad +2$

$\frac{3x}{3} = \frac{4}{3} \quad x = 2$

$x = \frac{4}{3}$

Check $1 - \frac{1}{4} = \frac{3}{4}$ ✓

$-\frac{1}{4} + 1 = \frac{3}{4}$ ✓

4. $8y\left(\frac{y}{8} - \frac{2}{y}\right) = \frac{3}{4}\,8y$

$y^2 - 16 = 6y$

$-8y \quad y^2 - 6y - 16 = 0$

$+2y \quad -6y$

$(y-8)(y+2) = 0$

$y = 8 \quad y = -2$

5. The landing distance, D, in feet, that a plane will travel on a runway after touchdown is a function of the initial landing speed, v, in $\frac{\text{ft}}{\text{sec}}$. For a certain plane, this function is:

$$D(v) = \frac{1}{10}v^2 - 3v + 22$$

a) Find the landing distance for a plane that has an initial landing speed of

$v = 180\frac{\text{ft}}{\text{sec}}$ $\quad \frac{1}{10}\left(180\frac{\text{ft}}{\text{s}}\right)^2 - 3\left(180\frac{\text{Ft}}{\text{s}}\right) + 22 =$

$D(v) = 3240 - 540 + 22$

$D(v) = 2722$ feet

b) Find the maximum initial landing speed for the plane landing on a runway that is 1500 feet long

$1500 = \frac{1}{10}v^2 - 3v + 22$

$0 = v^2 - 30v - 14780$

$225 + 14780 = v^2 - 30v + 225$

$15005 = (v-15)^2$

$\pm\sqrt{15005} = v - 15$

$15 \pm 122.5 = 137.5\frac{\text{ft}}{\text{s}}$

$125^2 = 15625$

$120^2 = 14400$

$122^2 = 14884$

$123^2 = 15129$

$122.5^2 = 15006.25$

Math 095 Quiz 9 Name: Key quadratics

Solve these quadratic equations by any method. Reduce to lowest terms. Simplify radicals. Circle your answers.

I will verify your recall of the quadratic equation for one point on this quiz. (If you know you know it, don't ask. If you aren't sure, for minus 1 from your quiz score, I will see if you are correct. No additional points off if I fix it for you because you did not recall it correctly. Do this right now, so you can proceed with the quiz problems.)

1. $x^2 - 6x = -7$

$a=1 \quad b=-6 \quad c=7$

$\frac{6 \pm \sqrt{36-28}}{2} = \frac{6 \pm \sqrt{8}}{2}$

$= \frac{6}{2} \pm \frac{2\sqrt{2}}{2} = (3 \pm \sqrt{2})$

2. $3y^2 - 2y + 5 = 0$

3. $3x(x-3) = x - 8$

$3x^2 - 9x = x - 8$

$+8 \quad -x \quad -x \quad +8$

$3x^2 - 10x + 8 = 0$

$a=3 \quad b=-10 \quad c=8$

$\frac{10 \pm \sqrt{100-96}}{6} =$

$\frac{10}{6} \pm \frac{\sqrt{4}}{6} = \frac{5}{3} \pm \frac{1}{3} =$

$\frac{6}{3} = (2, \frac{4}{3})$

4. $\left(\frac{y}{8} - \frac{2}{y} = \frac{3}{4}\right) 8y$

$y^2 - 16 = 6y$

$y^2 - 6y - 16 = 0$

$a=1 \quad b=-6 \quad c=-16$

$\frac{6 \pm \sqrt{36+64}}{2} = \frac{6}{2} \pm \frac{10}{2} = 3 \pm 5 = (8, -2)$

5. The landing distance, D, in feet, that a plane will travel on a runway after touchdown is a function of the initial landing speed, v, in $\frac{\text{ft}}{\text{sec}}$. For a certain plane, this function is:

$$D(v) = \frac{1}{10}v^2 - 3v + 22$$

a) Find the landing distance for a plane that has an initial landing speed of

$v = 180 \frac{\text{ft}}{\text{sec}}$

$a=.1 \quad b=-3 \quad c=-1478$

$\frac{3 \pm \sqrt{9+591.2}}{.2} = \frac{3 \pm \sqrt{600.2}}{.2} = 15 \pm \frac{24.5}{.2}$

$= (137.5)$

b) Find the maximum initial landing speed for the plane landing on a runway that is 1500 feet long

$1500 = \frac{1}{10}v^2 - 3v + 22$

$-1500 \qquad -1500$

$0 = \frac{1}{10}v^2 - 3v - 1478$

$0 = v^2 - 30v - 14780$

$a=1 \quad b=-30 \quad c=-14780$

$\frac{30 \pm \sqrt{900+59120}}{2} = 15 \pm \frac{2\sqrt{15005}}{2}$

$\doteq 15 \pm 122.5 = (137.5)$

Math 095 Final Exam Winter 2009 Name: _____

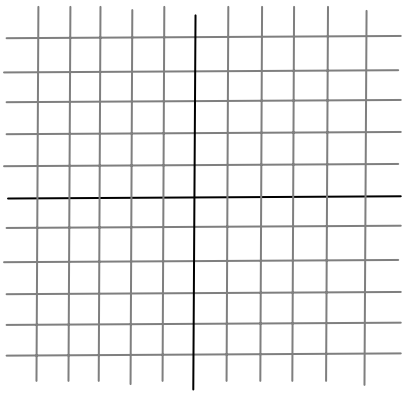
Show all work for full credit. Circle your answers.

1. Write this equation in slope-intercept form: $4x - 3y = 9$

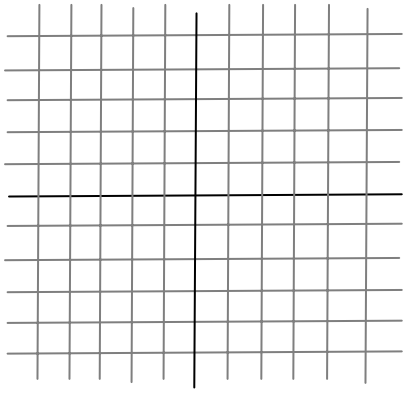
Identify the slope:

y-intercept:

Graph the line.

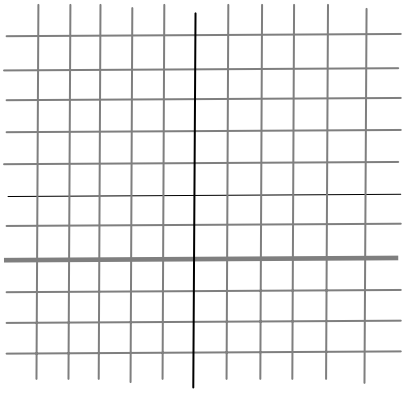


2. Use the point-slope formula to write an equation of the line given the following information. The slope is 3, and the line passes through the point (–2, –5). Write the final answer in slope-intercept form. Graph the line.



3. Solve this system of equations by graphing:

$$4x - 2y = -4$$
$$3x + y = 7$$



4. To attend a state fair, the cost is $10 per person admission. There is an additional cost of $1.50 per ride. Write an equation that gives the total cost, *y*, of visiting the state fair and going on *x* rides. Use the equation to determine the cost of going to the state fair and going on 10 rides.

Write the answers to these systems as ordered pairs. Circle your answers.

5. Solve this system of equations by substitution:

$$3x + 5y = 13$$
$$y = x + 9$$

6. Solve this system of equations:

$$6x + 8y = 5$$
$$3x - 2y = 1$$

7. Write the domain of these functions in interval notation:

a. $f(x) = \dfrac{x-5}{x+7}$

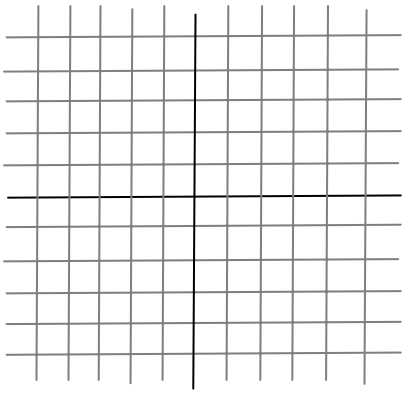
b. $g(x) = \sqrt{x+2}$

8. For the function: $h(x) = -3x - 1$

a. Find $h(0)$

b. Find $h(-2)$

c. Graph the function



Circle your answers

9. Factor this polynomial:

$$9y^2 + 6y + 1$$

10. Factor this polynomial:

$$w^2 + 12w + 35$$

11. Factor this polynomial:

$$18x^2 + 39x - 15$$

12. Solve this equation for *y*:

$$7y^2 - 9y - 10 = 0$$

13. Solve this equation for *w*:

$$3\left(w^2 + 4\right) = 20w$$

14. Reduce to lowest terms:

$$\frac{x^2 - 2x - 3}{x^2 - 9}$$

15. Divide as indicated. Simplify to lowest terms

$$\frac{y^2 + 8y + 7}{y^2 - 2y - 3} \div \frac{y + 7}{3 - y}$$

Be sure to circle your answers

16. Solve this equation for *w*:

$$\frac{w}{5} - \frac{w+3}{w} = -\frac{3}{w}$$

17. Circle the statements that are true:

a. $\sqrt{h^2 + k^2} = h + k$

b. $h^{m/n} = \left(\sqrt[n]{h}\right)^m$

c. $\sqrt{(h+k)^2} = h + k$

18. Simplify this expression. Write with positive rational exponents only.

$$\left(\frac{1}{16}\right)^{-3/4} - \left(\frac{1}{8}\right)^{-2/3}$$

19. Simplify this radical: $\sqrt{108}$

20. Simplify this radical: $\sqrt[4]{32x^6}$

21. Add and subtract as indicated:

$$x \cdot \sqrt[3]{16x^2} - 4 \cdot \sqrt[3]{2x^5} + 5x \cdot \sqrt[3]{54x^2}$$

22. Multiply the radicals and simplify the answer:

$$\left(2\sqrt{x} - 3\right)\left(2\sqrt{x} + 3\right)$$

Be sure to check your possible solutions. Circle those that are true solutions.

23. Solve the radical equation if possible:

$$\sqrt{x-6}-5=0$$

24. Solve the radical equation if possible. Use the area to the right to check your possible solutions. See above.

$$\sqrt{8y+1}=-\sqrt{y-13}$$

25. Solve the radical equation if possible:

$$\sqrt{w+2}=1-\sqrt{2w+5}$$

26. Rewrite the expression in terms of *i*:

$$\sqrt{-25}$$

27. Simplify the power of *i*:

$$i^{101}$$

28. Multiply. Write the final answer in the form $a+bi$:

$$(4+3i)(2-4i)$$

Be sure to circle your answers

29. Solve this equation using the square root property:

$x^2 = -81$

30. Solve this equation using the square root property:

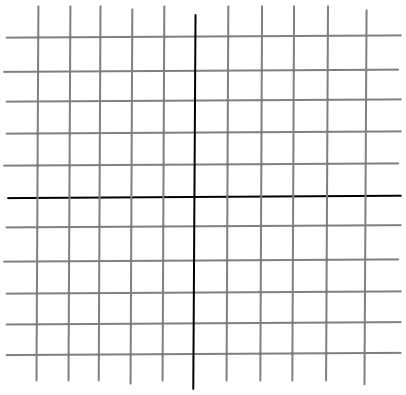
$3(y-4)^2 = 15$

31. Solve this equation using the quadratic formula:

$w^2 - 4w + 1 = 0$

32. Graph this function:

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



33. Solve this equation by any method:

$3x(x-3) = x - 8$