Mth 95 Review Activity for Exam 2 *"Whatever you are, be a good one." --- Abraham Lincoln*

1. Solve the following equations **by hand**. For quadratic equations, you may factor, take square roots, or use the quadratic formula to solve. Show your work and **simplify**.

   a) $12 - 7(2x - 5) = 3(3x + 7)$

   b) $2\frac{3x + 8}{5} + \frac{5x}{2} = \frac{3x + 4}{5} + 8$

   c) Solve for y: $a(y - 7) = by + cx^2$

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

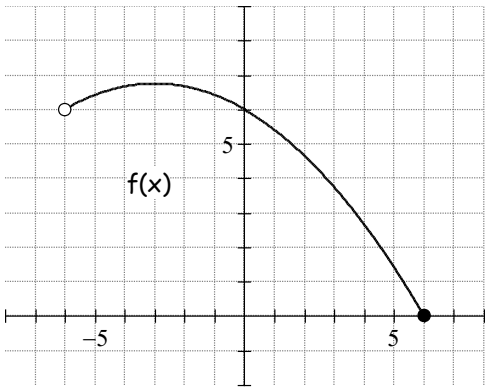
   e) $3x^2 + 2x = 2$

   f) $(2x - 5)(x + 8) = 0$

   g) $3(2x - 5)(4x + 3) = 18 - 6x(3 - 2x)$

   h) Solve for t: $H = -\frac{1}{2} g t^2 + v_0 t + h_0$

2. State whether the graph represents a function. If it is a function, state the domain.



   (a) f(0) = (b) f(-6) = (c) f(6) =

   (d) f(x) = 6, x =

3. Find the value of the function, f(x) = -4x – 5, at each given input.

   a) f(-2) = b) f(0) = c) f(b) = f(x + h) =

4. Let $f(x) = 2x^2 + x$ and $g(x) = x^2 + 2$. Determine the following combination of functions.

   a) (f + g)(x) = b) (f – g)(x) = c) (fg)(x) =

5. Let $f(x) = 5 - x$ and $g(x) = 2x + 3$. Determine the following values.

   a) $(f - g)(-3) =$ b) $(fg)(4) =$

6. Two positive numbers have their product as 78. One number is seven more than the other. Let x = number 1, y = number 2. Write a pair of equations for this scenario. Solve the equations to determine the two numbers.

7. The length of a rectangle is three times the width. The area is 147 square centimeters. Let L = length, y = width. Write a pair of equations for this scenario. Solve the equations to determine the length and width of the rectangle.

9. One leg of a right triangle is twice the length of the other leg. The hypotenuse is 15 feet. Let a = leg 1 & b = leg 2. Recall the Pythagorean Theorem ($a^2 + b^2 = c^2$). Write an equation(s) for this scenario. Solve the equation(s) to find the length of the two legs. Write your answers exactly (using a simplified radical).

10. Determine the equation of the line that passes through the points (5, 0) and (-2, 3). Write your answer is slope intercept form.

11. Use the zero or intersect method on your calculator to solve the following equation.

    $3x + 2 = |x + 1| - 4$ Note: absolute value on the TI is abs( ).

12. Jill sells NASCAR decals at the race track for $2.50 ea. She obtains them for $0.75 ea. She also had to pay $200 for a vendor license. Let x = # of decals.

    (a) Write a linear equation for Jill's Expenses.

    (b) Write a linear equation for Jill's Revenues.

    (c) Write a linear equation for Jill's Profits.

    (d) How many decals must Jill sell to breakeven?

    (e) If Jill buys and sells 1000 decals what is her profit?

    (f) If Jill wants to make a $1000 profit, how many decals must she buy/sell?

Mth 95 Review Activity for Exam 2 *"Whatever you are, be a good one." --- Abraham Lincoln*

1. Solve the following equations **by hand**. For quadratic equations, you may factor, take square roots, or use the quadratic formula to solve. Show your work and **simplify**.

a) $12 - 7(2x - 5) = 3(3x + 7)$ $x = 26/23$

b) $2\frac{3x+8}{5} + \frac{5x}{2} = \frac{3x+4}{5} + 8$ $x = 56/31$

c) Solve for y: $a(y - 7) = by + cx^2$ $y = \frac{7a + cx^2}{a - b}$

d) $(x - 2)^2 = 9$ $x = 2 \pm 3$ or $x = 5, -1$

e) $3x^2 + 2x = 2$ $\frac{-1 \pm \sqrt{7}}{3}$

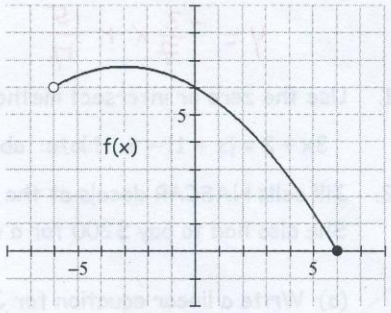
f) $(2x - 5)(x + 8) = 0$ $x = -8, 5/2$

g) $3(2x - 5)(4x + 3) = 18 - 6x(3 - 2x)$ $x = 3/2, -3/2$, $4x^2 - 8x - 21 = 0$

h) Solve for t: $H = -\frac{1}{2} g t^2 + v_0 t + h_0$ $-\frac{1}{2} g t^2 + v_0 t + h_0 - H = 0$ $t = \frac{+v_0 \pm \sqrt{v_0^2 + 2g(h_0 - H)}}{+g}$

2. State whether the graph represents a function. If it is a function, state the domain.

fcn (passed VLT) D: $-6 < x \leq 6$



3) (a) $f(0) = 6$ (b) $f(-6) = \emptyset$ (c) $f(6) = 0$

(d) $f(x) = 6$, $x = 0$

3. Find the value of the function, $f(x) = -4x - 5$, at each given input.

a) $f(-2) = 3$ b) $f(0) = -5$ c) $f(b) = -4b - 5$ $f(x + h) = -4(x + h) - 5$

4. Let $f(x) = 2x^2 + x$ and $g(x) = x^2 + 2$. Determine the following combination of functions.

a) $(f + g)(x) =$ $3x^2 + x + 2$

b) $(f - g)(x) =$ $x^2 + x - 2$

c) $(fg)(x) = (2x^2 + x)(x^2 + 2)$ $2x^4 + x^3 + 4x^2 + 2x$

5. Let $f(x) = 5 - x$ and $g(x) = 2x + 3$. Determine the following values.

a) $(f - g)(-3) =$ 11 b) $(fg)(4) =$ 11

6. Two positive numbers have their product as 78. One number is seven more than the other. Let x = number 1, y = number 2. Write a pair of equations for this scenario. Solve the equations to determine the two numbers.

$xy = 78$, $y = x + 7$ $x(x+7) = 78$ $x = 6$, $y = 13$

7. The length of a rectangle is three times the width. The area is 147 square centimeters. Let L = length, y = width. Write a pair of equations for this scenario. Solve the equations to determine the length and width of the rectangle.

$L = 3y$, $Ly = 147$ $3y \cdot y = 147$ $y = 7$, $L = 21$

9. One leg of a right triangle is twice the length of the other leg. The hypotenuse is 15 feet. Let a = leg 1 & b = leg 2. Recall the Pythagorean Theorem ($a^2 + b^2 = c^2$). Write an equation(s) for this scenario. Solve the equation(s) to find the length of the two legs. Write your answers exactly (using a simplified radical).

$a = 2b$, $a^2 + b^2 = 15^2$ $(2b)^2 + b^2 = 225$ $b = \sqrt{45} = 3\sqrt{5}$, $a = 6\sqrt{5}$

10. Determine the equation of the line that passes through the points (5, 0) and (-2, 3). Write your answer is slope intercept form.

$y = -\frac{3}{7}x + \frac{15}{7}$

11. Use the zero or intersect method on your calculator to solve the following equation.

$3x + 2 = |x + 1| - 4$ Note: absolute value on the TI is abs( ). $x = -1.75 = -7/4$

12. Jill sells NASCAR decals at the race track for \$2.50 ea. She obtains them for \$0.75 ea. She also had to pay \$200 for a vendor license. Let x = # of decals.

(a) Write a linear equation for Jill's Expenses. $E = 0.75x + 200$

(b) Write a linear equation for Jill's Revenues. $R = 2.50x$

(c) Write a linear equation for Jill's Profits. $P = R - E = 2.50x - [0.75x + 200] = 1.75x - 200$

(d) How many decals must Jill sell to breakeven? ~115 decals

(e) If Jill buys and sells 1000 decals what is her profit? \$1550

(f) If Jill wants to make a \$1000 profit, how many decals must she buy/sell? ~686 decals