Math 3/Precalc
Functions and Equations
LEARNING PLAN
(Chapter 3)

Name:

_____

Date:

_____

Period:____

G

—

Skill / Understanding:	Review Problems:
Piecewise Functions ❏ I can graph a piecewise-defined function. ❏ I can evaluate values of a piecewise defined function given an input or output. ❏ I can determine whether a piecewise function is continuous or not.	See Piecewise Notes
Even and Odd Functions ❏ I understand that an even function is symmetrical about the y-axis and that $f(-x)=f(x)$ ❏ I understand that an odd function has rotational symmetry about the origin and $f(-x)= -f(x)$. ❏ I can identify whether a function is even, odd or neither by looking at its graph. ❏ I can identify whether a function is even, odd or neither algebraically using its equation	2-82, 2‑95, and 2-122

One-Variable Equations
❏ I understand that the solution to a one-variable equation is a point or points on a numberline.
❏ I can solve a wide range of 1-variable equations including
   ❏ equations that have an extraneous solution
   ❏ absolute value equations
   ❏ equations with decimals or fractions
   ❏ quadratic equations (by factoring and ZPP)
   ❏ quadratic equations (by quadratic formula)
❏ I can use a graph of a two-variable equation to solve a one-variable equation.
❏ I can use a graph of a system of equations to solve a one-variable equation.
	3‑10, 3-19, 3-31, 3‑32, 3-38, 3‑39, 3-42, 3‑44, 3-49, 3-51, 3-83, 3-101, 3-104, 3‑109 part (d), and CL 3-117

Two-Variable Equations ❏ I can graph a two variable equation. ❏ I understand that the solution to a two-variable equation is every point (ordered pair) on the line or curve.	
Systems of Two-Variable Equations ❏ I understand that the solution to a system of equations are the points (ordered pairs) of intersection between the two curves. ❏ I can solve systems of equations both linear and nonlinear. ❏ I can solve systems of equations algebraically. ❏ I can graph a system of equations. ❏ I can identify the solution(s) of a system of equations when given the graph.	
Understanding Solutions ❏ I understand that a solution of an equation is the value(s) that make the equation(s) true. ❏ I can tell the difference between 1-variable equations and 2 variable equations. ❏ I understand the difference between an equation and an expression, and that expressions do not have solutions.	

PRACTICE PROBLEMS

1 Solve the following equations:

    a. $3(2x - 1)^2 + 12 = 4x - 3$
                         b. $\sqrt{3x + 1} - x = -3$
                    c. $\frac{3}{4}x^2 = \frac{5}{4}x + \frac{1}{2}$

2) Solve each system of equations without graphing. For each case, explain what the solution tells you about the graph of the system.

    a. $= \frac{1}{3}x^2 + 1$
         $y = 2x - 2$
                    b. $y = \sqrt{x - 3}$
                             $y = x - 5$
                                        c. $6x - 2y = -4$
                                             $y = 3x + 2$

3) Given the piecewise function at right,

    a. Evaluate:

        i. f(3)
        ii. f(2)
        iii. f(1)

$$f(x) = \begin{cases} x^2 & \text{if } x < 2 \\ 6 & \text{if } x = 2 \\ 10 - x & \text{if } x > 2 \end{cases}$$
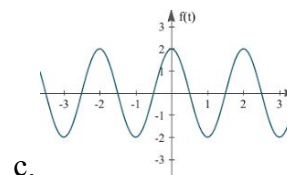
    b. Graph f(x)

    c. Is f(x) continuous?

4) Determine which functions below are even, odd or neither.

a. $f(x) = \frac{x^3 - 4x}{2x^5}$
                    b. $g(x) = 3(x - 4)^2 + 7$

c.

5) Complete the square to change the following equations to graphing form. Then sketch the graph of each equation.

    a. $y = x^2 + 4x + 6$
                       b. $x^2 + 6x + y^2 - 8y = 0$

6) The graph at right represents the equation $y = \sqrt{25 - x^2}$ and is scaled by ones. Use the graph to solve the equation $4 = \sqrt{25 - x^2}$ and explain how you got your solution.