A. Lesson Context

BIG PICTURE of this UNIT:	• What is meant by the term FUNCTIONS and how do we work with them? • mastery with working with basics & applications of linear functions • mastery with working with basics & applications of linear systems • understanding basics of function concepts and apply them to lines & linear systems		
CONTEXT of this LESSON:	Where we've been In Lesson 3, you practiced with stating the domain and range of functions	Where we are Using technology to produce graphs of functions & then apply various function concepts	Where we are heading Mastery of working with multiple representations of f(x) = mx + b

B. Lesson Objectives

a. Use technology (TI-84 and DESMOS) to generate graphs of functions.

b. Use the graphs generated to apply various function concepts like domain, range, evaluate and solve

C. Fast Five (Skills Review Focus)

1. $\frac{5}{2}x+\frac{7}{5}x=-\frac{53}{10}+\frac{5}{4}x$

2. $-\frac{19}{6}\left(a+\frac{13}{5}\right)=\frac{81}{10}+\frac{3}{2}a$

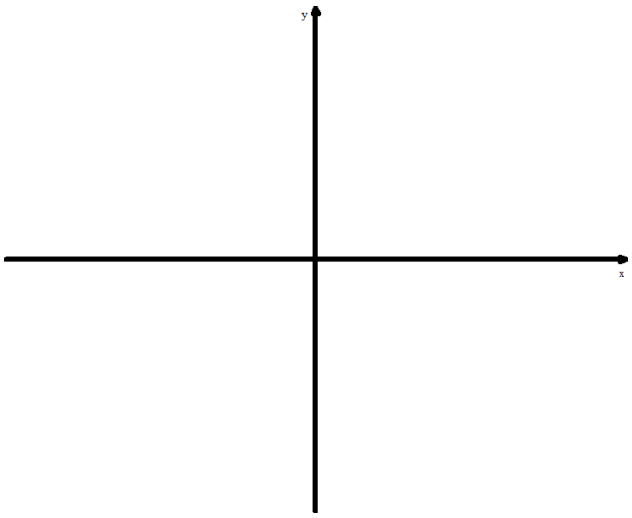
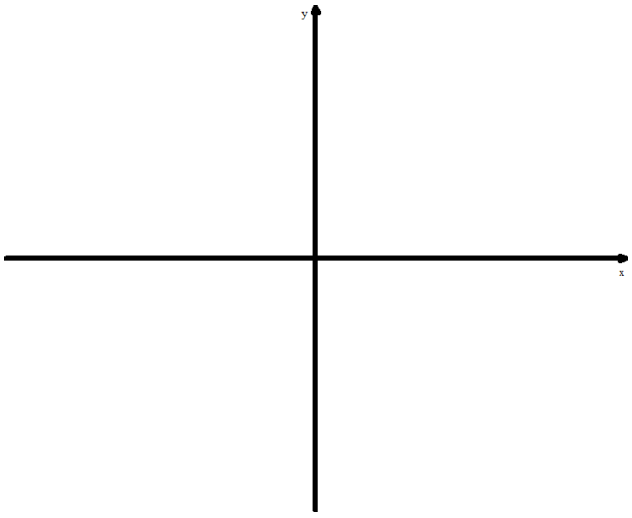
3. $6-10\left(m-6\right)=-9+5m$

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

5. $-\frac{4}{3}\left(\frac{2}{3}p-\frac{7}{4}\right)=-\frac{7}{2}\left(-\frac{16}{5}p+\frac{10}{3}\right)+\frac{10}{3}$

6. $-4\left(7n-6\right)=-48-10n$

D. Graphs of Functions

We will give you instructions on HOW to use the TI-84 graphing calculator as well as DESMOS in order to prepare graphs of the functions and/or relations when presented with an EQUATION The most important part of this exercise will be to set your VIEW WINDOW SETTINGS, so that you see the graph of the function, rather than just empty space!!	Once you generate a graph of a function, you will be expected to SKETCH a copy of the graph. Here is a list of the key details that should appear in your sketches: • The x- and y-axis • Key points (usually x- and y-intercepts but also maximum and minimum points • Have the correct "shape" of the function • Label the function with its equation
EXAMPLE 1 ➔ Graph the function $f(x) = 4 - \frac{1}{2}x$. From your graph (or from your calculator or from algebra), determine the : Domain➔ Range ➔ x-intercept ➔ y-intercept ➔ f(-2) = What value of x makes f(x) = -8?	
EXAMPLE 2 ➔ Graph the function $f(x) = 2x - 8$. From your graph (or from your calculator or from algebra), determine the : Domain➔ Range ➔ x-intercept ➔ y-intercept ➔ f(-4) = What value of x makes f(x) = 22?	

E. Graphs of Functions

EXAMPLE 3 ➔ Graph the function $f(x)=12+\frac{1}{3}x$. From your graph (or from your calculator or from algebra), determine the : Domain➔ Range ➔ x-intercept ➔ y-intercept ➔ f(6) = What value of x makes f(x) = -8?	
EXAMPLE 4 ➔ Graph the function $f(x)=15x+100$. From your graph (or from your calculator or from algebra), determine the : Domain➔ Range ➔ x-intercept ➔ y-intercept ➔ f(10) = What value of x makes f(x) = 400?	
EXAMPLE 5 ➔ Graph the function $f(x)=x+3$ on the domain $\{x \in R \mid x \le 5\}$. From your graph (or from your calculator or from algebra), determine the : Domain➔ Range ➔ x-intercept ➔ y-intercept ➔ f(-4) = What value of x makes f(x) = 10?	

F. Graphs of Functions

EXAMPLE 6 ➔ Graph the function $f(x) = -\frac{1}{2}x - 4$ on the range $\{y \in R \mid y > -8\}$. From your graph (or from your calculator or from algebra), determine the : Domain➔ Range ➔ x-intercept ➔ y-intercept ➔ f(6) = What value of x makes f(x) = -8?	
EXAMPLE 7 ➔ Graph the function $f(x) = 3x + 10$ on the range $\{x \in R \mid -5 \le x < 5\}$. From your graph (or from your calculator or from algebra), determine the : Domain➔ Range ➔ x-intercept ➔ y-intercept ➔ f(3) = Solve for x if f(x) = -2?	
EXAMPLE 8 ➔ Graph the function $f(x) = 4 - x^2$ on the domain $\{x \in R \mid -3 < x \le 6\}$. From your graph (or from your calculator or from algebra), determine the : Domain➔ Range ➔ x-intercept ➔ y-intercept ➔ f(4) = Solve f(x) = 7	