

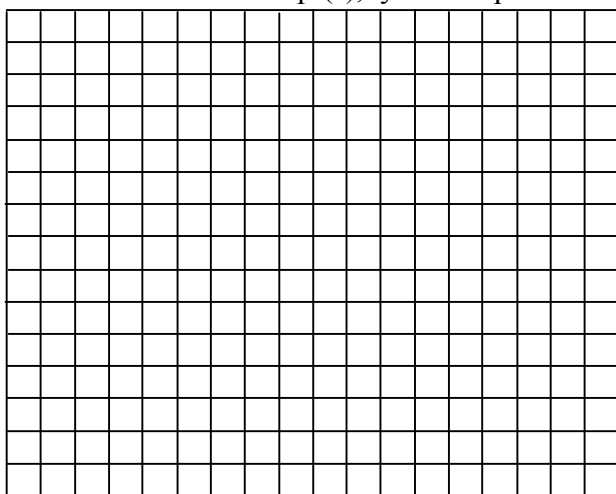
Name: _____
Collab #1 Due: Wednesday, April 6

Collab #1 Handout for Math 1A

Instructions: As a group of 2 or 3, discuss how to do the following problems. On this paper (only continuing on a separate sheet of paper if absolutely necessary), write the answer to each problem showing all work in getting to the solution. Box the solution.

1. Define a function. Discuss a function's domain and range.

2. For the function, $f(x) = -2x^2 + 18$ do the following:
a) Graph $f(x)$ on your calculator & sketch it on your paper showing the x-intercept(s), y-intercept & the vertex.



- b) What is the shape of the graph?
c) What type of function is this?
d) Use your calculator to find $f(4)$

- e) Use your calculator to find the value(s) of x for which $f(x) = 17$

3. How do you identify a vertical & horizontal intercept? How can you interpret them?

4. What is the slope of a linear function? How can it be interpreted in terms of independent and dependent variables?

5. Name 3 ways to find the slope and give an example.

6. Give the point-slope form of a line and use it to give the equation of the line through the points $(-2, 5)$ & $(3, -1)$ in slope-intercept form.

7. What does it mean for a function to be increasing? Draw a picture of any increasing function.

8. What does it mean for a function to be decreasing? Draw a picture of any decreasing function.

9. For each of the following types of equations sketch a graph and give an example equation.

a) Quadratic

b) Cubic

c) Inverse

d) Square Root

e) Absolute Value

f) Linear

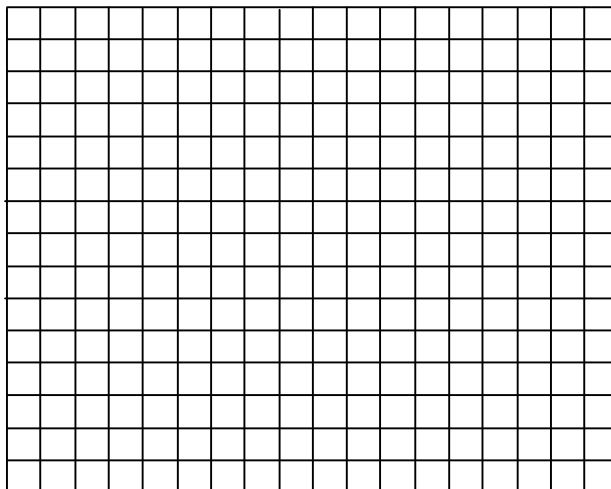
10. For the table of values:

t	-3	-2	-1	0	1	2	3
f(t)	16	96	144	160	144	96	16

a) Sketch a graph of the function

b) come up with a formula, using function notation to denote it. Show exactly how you come up with the equation.

c) How would the process change in getting the answer for part b) if you were not given the point where $t=0$?



11. Tickets for a concert go on sale, and 100 tickets sell immediately. The tickets then sell at a rate of 20 per day. If N represents the total number of tickets sold t days after going on sale, answer the following questions.

a) Make a table for $t = 0, 1, \dots, 5$

b) Find a formula for N as a function of t .

c) What is the vertical intercept? What does this mean in context of the problem?

d) What is the slope? What does this mean in context of the problem?

12. Factor the following polynomials:

a) $25x^2 - 81$

b) $49x^2 - 56x + 16$

c) $x^2 + 9x + 14$

13. What do you have to remember to do in your calculator before dealing with Trig functions?

14. Convert the following degree measures to radians:

a) 90°

b) 180°

c) 270°

15. Give the values for sine and cosine of the measures in #14. Give your answers as: $\sin(90^\circ) = ?$, etc.

16. Rationalize the following denominators:

a) $\frac{\sqrt{7}}{\sqrt{x+2}}$

b) $\frac{7}{x - \sqrt{2}}$