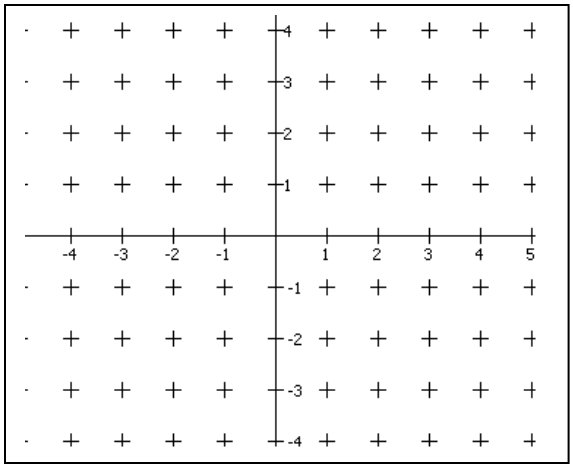
Math 165/166 Review 3 Name & Number:

Show all your work to get proper credits. Otherwise, no credit will be given. This is only the review for exam and **you should review other necessary work**. Exam 3 covers chapter **2.6 & 3.1-3.4**.

1. Sketch a graph of the following. Label them clearly.

Provide the table for your work.

(a) $y=-x^2+1$ (b) $y=-2x+6$ (c) $y=\dfrac{1}{2x}$ (d) $y=2|x-1|$



2. Find an equation of the linear function:

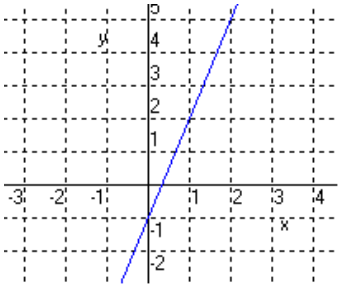
(a) passing through the points (-3,1) and (7,-3).

(b) parallel to 2x-3y=1 and contains (1,-1).

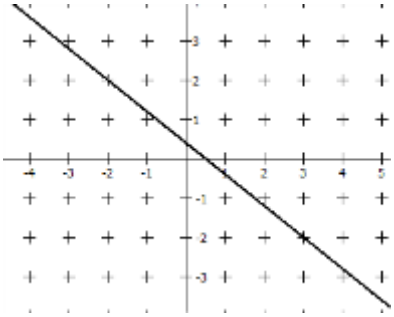
(c) bisects the line thru the points (-3,1) and (7,-3).

3. Find an equation of the lines given below.

(a)



(b)



4. Find the following if $f(x)=-2x^2+x+1$.

(a) $f(-2)$ (b) $f(u^2)$ (c) $f(1+t)$ (d) $\dfrac{f(1+t)-f(1)}{t}$

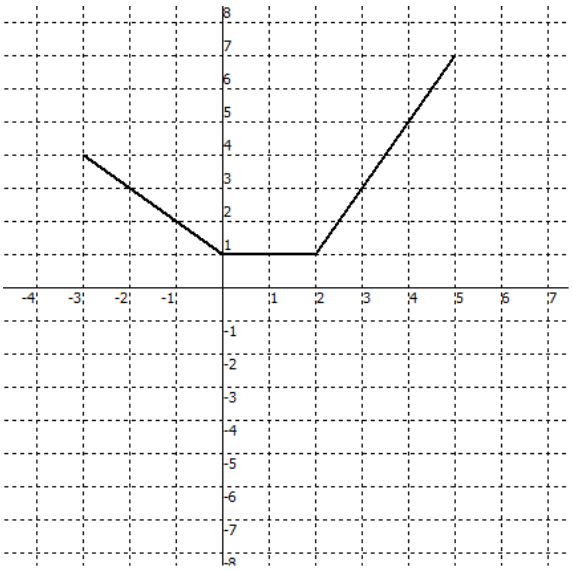
5. A business manufactures a product at a cost of $0.65 per unit and sells the product for $1.20 per unit. The company's initial investment to produce the product was $10,000. How many units must the company sell to break even?

6. Find a formula for the linear function below.

Year, t	0	1	2
Value of computer, V = f(t)	2000	1500	1000

7. In a college meal plan you pay a membership fee; then all your meals are at a fixed price per meal. If 30 meals cost $152.50 and 60 meals cost $250,
(a) Find the membership fee and the price per meal.
(b) Write a formula for the cost C of a meal plan in terms of the number of meals n.

8. Use the idea of transformation to sketch the function of $y=-f(x-1)+2$ if the graph of $y=f(x)$ is sketch below.



Transformation:

1)

2)

3)

9. Suppose the function is defined as $y=f(x)=\begin{cases} x-1 & \text{if } x\le -1 \\ x^2 & \text{if } -1<x\le 2 \\ -2 & \text{if } x>2 \end{cases}$. Answer the following.

(a) Skecth the function $y=f(x)$.

(b) Evaluate $f(-3)$.

(c) Determine where the fuction f is increasing, decreasing, and constant.

10. Solve the inequality or equation.

(a) $2-3|3x-1|=-1$ (b) $|3x-2|+3\le 5$

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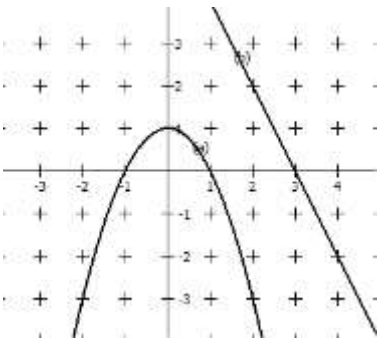
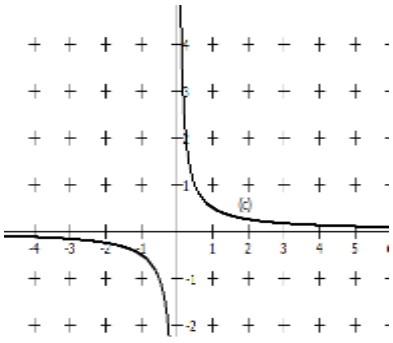
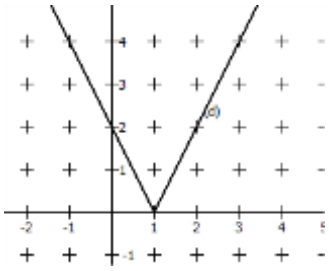
1. (a)&(b) (c) Note: The graph of (c) must have two parts. (d)



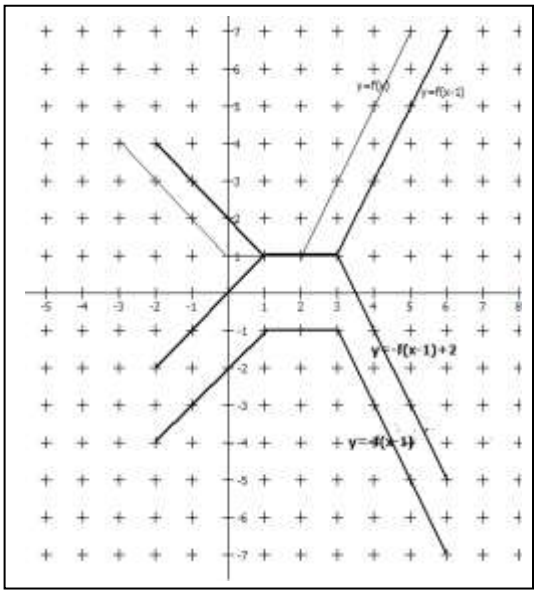




2.(a) y=-2/5x-1/5 (b)y=2/3x-5/3 (c)y=2.5x-6

3.(a) y=3x-1 (b)y=-0.8x+0.4

4. (a) -9 (b) $-2u^4+u^2+1$ (c) $-2t^2-3t$ (d) $-2t-3$



5. about 18,182

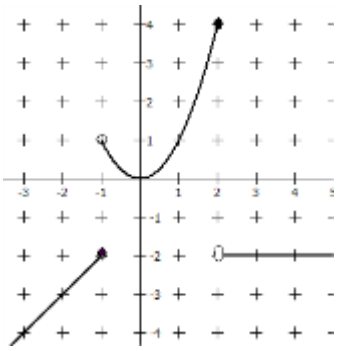
6. $V=2000-500t$

7. (a) $3.25 per meal and membership fee is $55.

(b) C=3.25n+55

8. See the right side.

9. (a)



(b) -4 (c) increasing over $(-\infty,-1)$ and $(0,2)$; decreasing on (-1,0); constant on $(2,\infty)$

10. (a) 2/3 or 0 (b) [0,4/3]

This is a brief outline of the main topics we had in class.

Sec 2.6: Absolute value equation and inequality

Solve an absolute value equation

Solve an absolute value inequality

Sec 3.1 The rectangular Coordinate System

Cartesian coordinate System, Distance formula, Midpoint formula, Symmetry, x,y-intercepts

Sec 3.2 Functions and Function Notation

Definition of function, Domain and Range, Vertical line test, Function notation, Evaluating function, Difference Quotient

Sec 3.3 Graphs of Functions

Special functions and their graphs, Several transformations, Reading graphs, Piecewise-defined function, Increasing Decreasing functions

Sec 3.4 Linear functions

Definition of linear functions, Slope of a line, Vertical and horizontal lines, Equation of a line, Parallel and perpendicular lines, Applications