

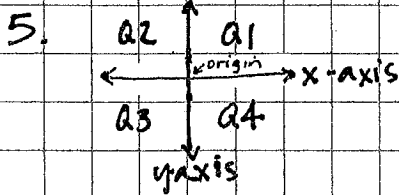
Introduction to Graphs & Functions

1. a. no
b. yes
c. no
d. yes
e. yes

2. a. -9, 0, 3
b. 1, 9, 3
c. 1, 5.5, 3

3. answers will vary...
(0, -2), (9, 0), (10, -2),
etc.

4. a. $y = \frac{1}{2}x + 2$
b. $y = -\frac{1}{2}x + \frac{4}{3}$
c. $y = \frac{4}{3}x - \frac{13}{3}$



6. a. no
b. yes
c. no
d. yes
e. no
f. yes
g. no
h. no
i. yes
j. no
k. yes
l. no
m. yes
n. no
o. no

8.2 POINTS, LINES, & Their Graphs

1. ORAL

5. H

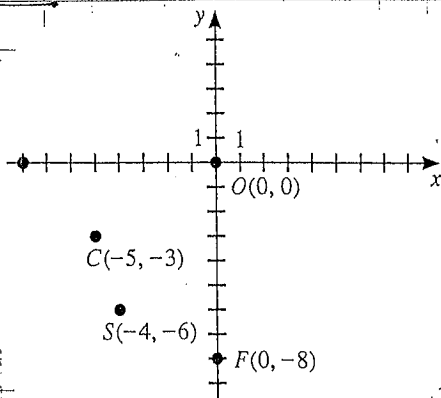
10. G

15. $(-9, 9)$, II

20. $(0, 5)$

WRITTEN

3. }
6. }
9. }
12. }



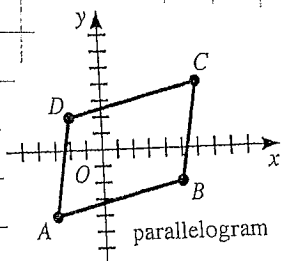
15. Z, H, Y, L

18. J, O, E

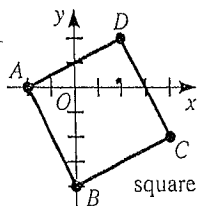
21. Z, O

24. B

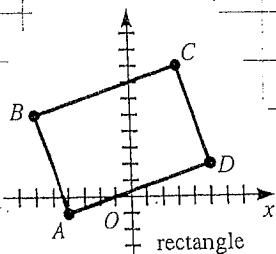
45.



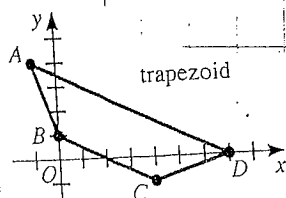
46.



47.



48.



2a. I, IV

b. III, IV

c. y-axis

d. II, III

e. I, II

f. II, IV

g. I, III

h. II

i. III

j. I, III

k. II, IV

3. 0

4. 0

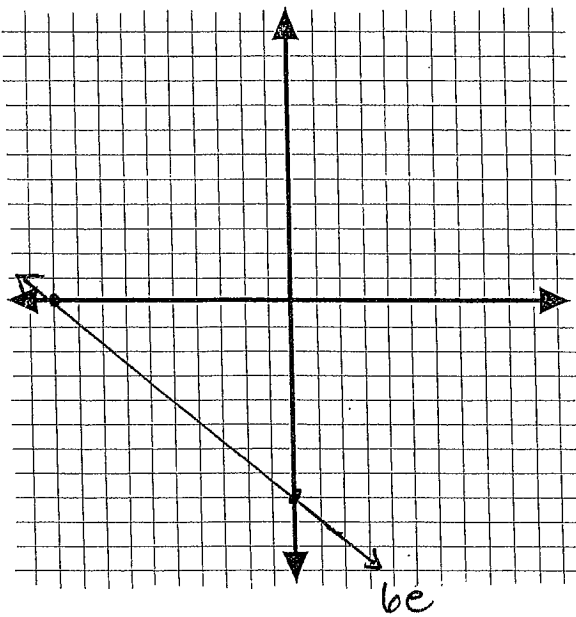
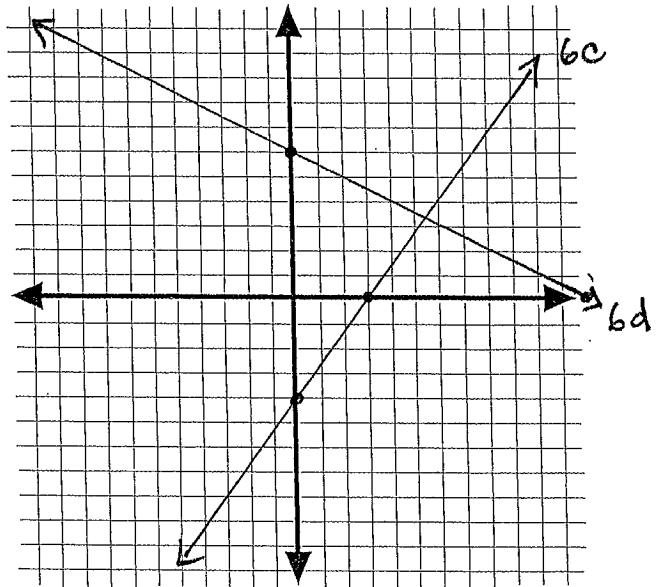
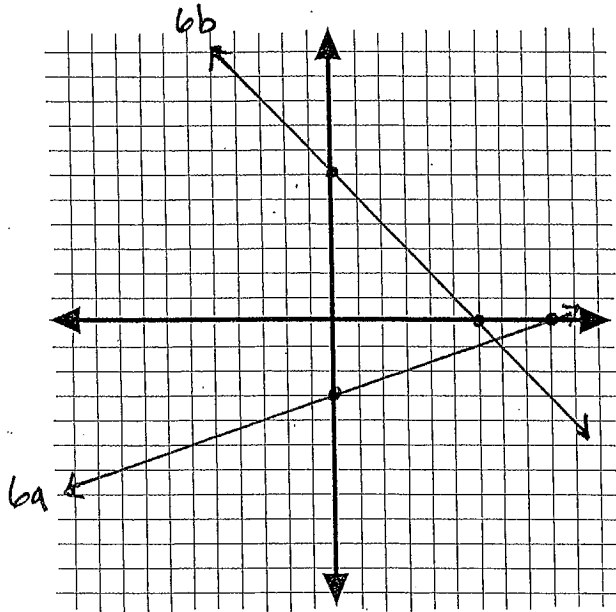
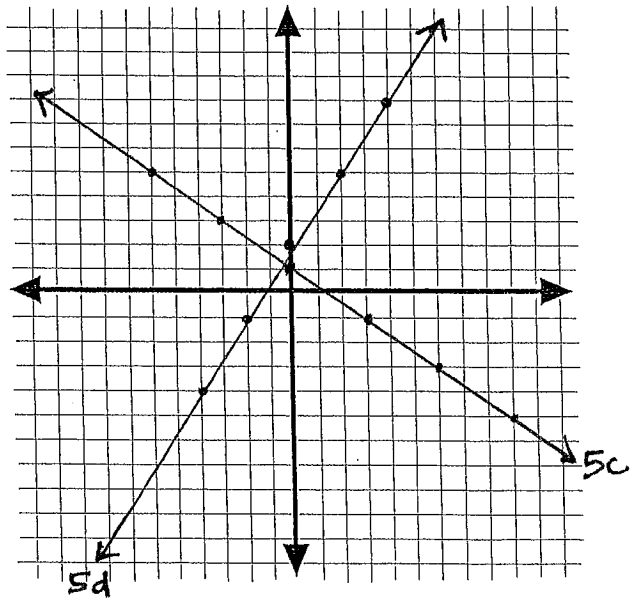
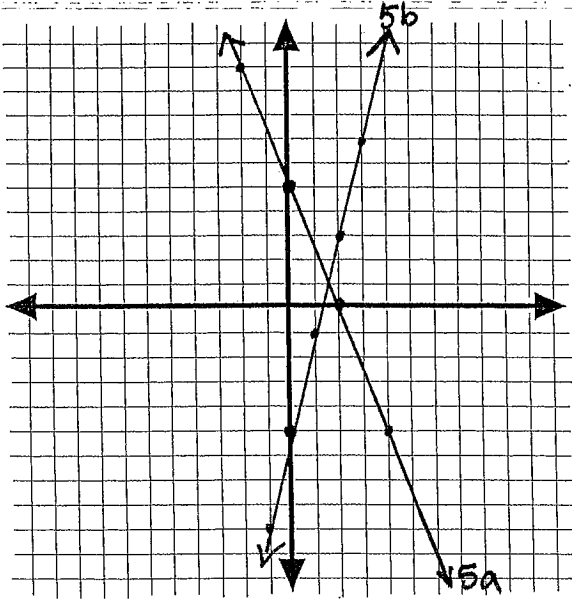
5. see attached graphs

- 6.*
- | | | |
|----|------------|-----------|
| a. | x-int: 9 | y-int: -3 |
| b. | x-int: 6 | y-int: 6 |
| c. | x-int: 3 | y-int: -4 |
| d. | x-int: 12 | y-int: 6 |
| e. | x-int: -10 | y-int: -8 |

graphs are attached

*Note: Intercepts can be written as ordered pairs too... so ba. could be $(9, 0)$ & $(0, -3)$, etc.

8.2



8.3 Slope

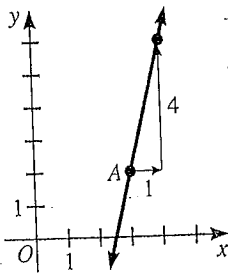
1. OPAL

1. a, d
2. c, f
3. b
4. e
5. $\frac{3}{4}$
6. $-\frac{6}{5}$
7. $\frac{1}{5}$
8. $-\frac{5}{2}$
9. 0
10. no slope

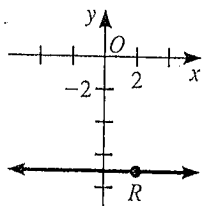
WRITTEN

1. $-\frac{1}{2}$
3. 1
5. $\frac{2}{11}$
7. 1
9. $\frac{5}{3}$
11. $\frac{2}{3}$

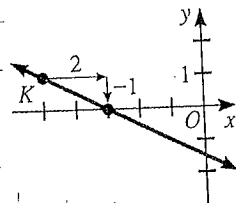
25.



27.



29.



38. $\overline{NP} \perp \overline{MQ} : -1$
 $\overline{MN} \perp \overline{PQ} : 1$

39. slope $\frac{1}{2}$, $y = 8$

40. $y = -3$

2. $y = 2$

3. $x = 0$

4. $x = 7$

5. $y = -3$

6. $y = 7$

31. collinear

33. not collinear

35. not collinear

8.4 Slope-Intercept Form of a Line

1. x-int: -3
y-int: 2
see attached graph

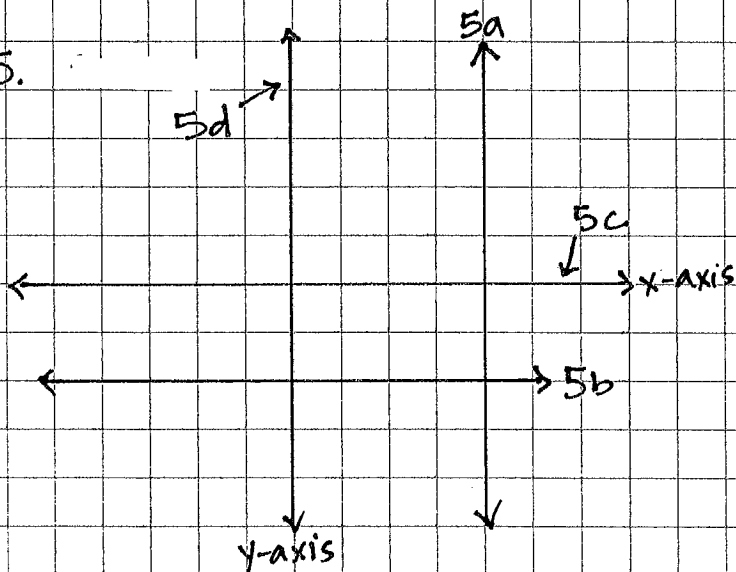
2. see graph

3. a. $m = 2$ $b = -3$
b. $m = -3$ $b = 0$
c. $m = \text{no slope}$ $b = \text{no y-int.}$
d. $m = -1$ $b = 3$
e. $m = 0$ $b = 7$
f. $m = \frac{3}{2}$ $b = 0$
g. $m = -\frac{3}{2}$ $b = 2$
h. $m = -\frac{1}{5}$ $b = 1$

all graphs attached

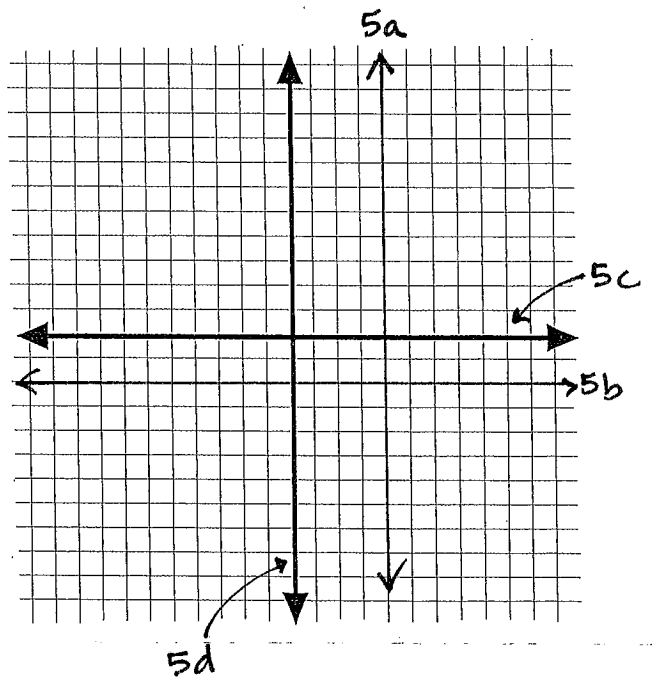
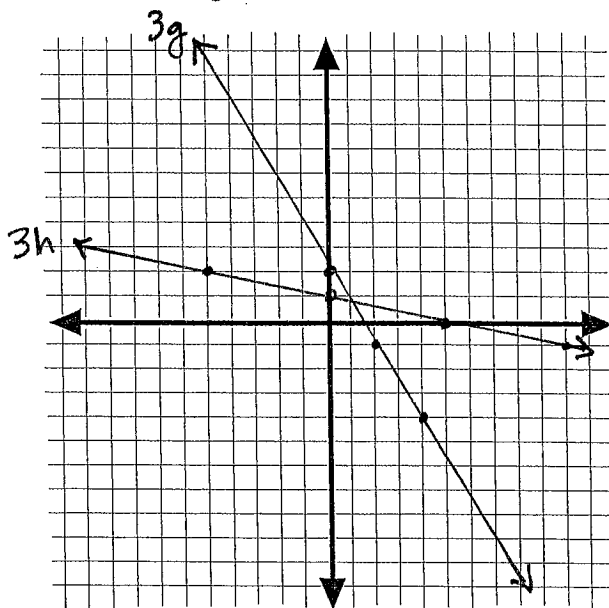
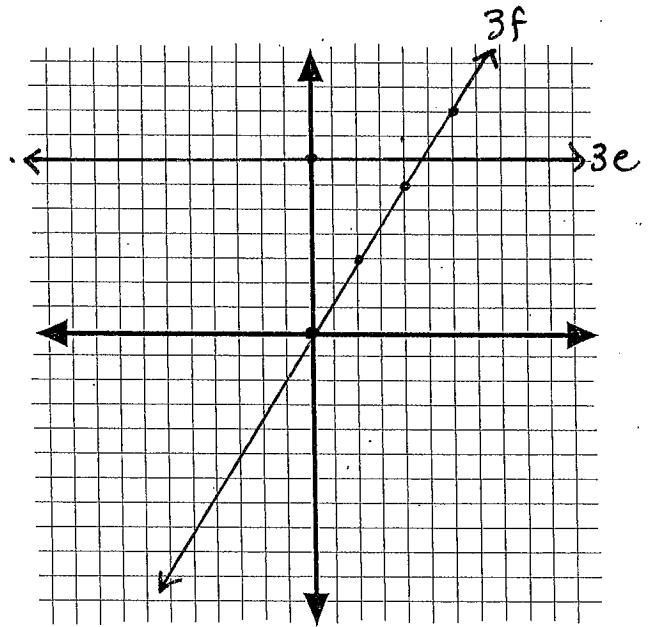
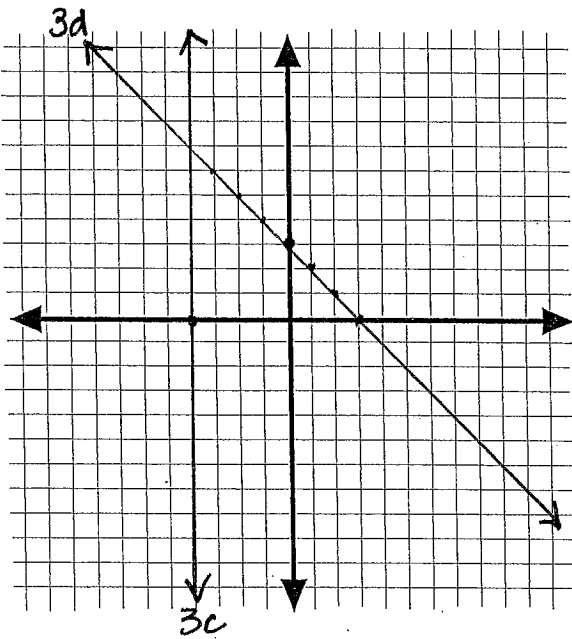
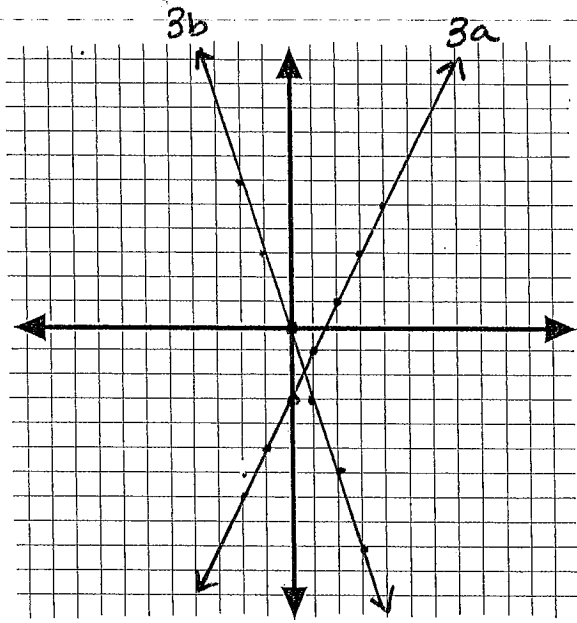
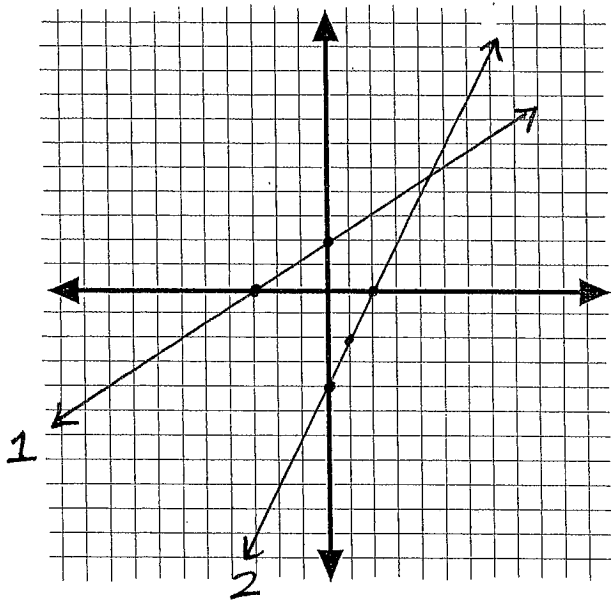
4. a. $r = \frac{3}{2}$
b. $r = -4$

5.



6. a. $y = -4$
b. $x = -5$
c. $x = 2\frac{1}{2}$
d. $y = 0$

8.4



Parallel & Perpendicular Lines

1. a. 3
- b. no slope
- c. $7/4$
- d. 0
- e. -1
- f. $-3/4$
- g. $2/3$

2. #1. $-2/3$
2. $-5/4$
3. $8/3$
4. $1/2$
5. $-5/3$
6. 1
7. no slope
8. 0
9. -3

3. a. parallel
- b. perp.
- c. neither

4. #10. perp.
11. parallel
12. parallel
13. perp.
14. perp.
15. parallel

5. $y = 9$

6. $x = -9$

7. $x = -8$

8. any line w/ slope $7/3$ ($y = \frac{7}{3}x + \#$)

9. $m = -2$

8.5 Writing Equations Using Slope-Intercept

1. $y = 2x + 5$

3. $y = -\frac{1}{2}x + 7$

5. $y = \frac{1}{2}x - 2$

7. $y = 2x + 11$

9. $y = -2x + 11$

11. $y = \frac{1}{2}x - 3$

13. $y = -\frac{3}{4}x + 3$

15. $y = 3$

17. $y = 2x + 7$

19. $y = -x + 7$

21. $y = -x + 9$

23. $y = \frac{8}{3}x - 9$

25. $y = 5x - 1$

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

29. $y = \frac{2}{5}x - 2$

31. $y = \frac{1}{2}x - 3$

33. $y = 5$

35. $y = 3x + 6$

37. $y = \frac{1}{2}x - 3$

39. a. no slope or intercept

b. $x = 2$

8.5 Writing Equations Using Point-Slope

2. $y = -3x + 4$

4. $y = \frac{2}{3}x + 9$

6. $y = -\frac{1}{3}x + 1$

8. $y = 3x - 11$

10. $y = -x + 13$

12. $y = \frac{1}{3}x - 2$

14. $y = -\frac{2}{5}x + 9$

16. $y = 4$

18. $y = -2x + 3$

20. $y = -\frac{4}{3}x$

22. $y = -\frac{1}{3}x + \frac{10}{3}$

24. $y = -\frac{3}{4}x - \frac{13}{4}$

26. $y = 5x + 3$

28. $y = -x + 3$

30. $y = \frac{5}{3}x - 5$

32. $y = -\frac{1}{2}x - 2$

34. $y = -1$

36. $y = \frac{1}{2}x + 2$

38. $y = -x + 8$

40. horizontal: $y = 7$, vertical: $x = -3$

42. $p = 6$

Standard Form

1. a
2. b
3. c
4. d
5. d
6. d
7. a
8. d
9. c
10. b

11. $2x - 5y = -9$
12. $6x - y = 19$
13. $2x + y = 5$
14. $2x - 12y = -15$
15. $x - 2y = 8$
16. $3x - y = -5$
17. $4x + y = 29$
18. $16x + 2y = 13$
19. $16x - 40y = -1$
20. $3x + 4y = 12$

8.7 Function Notation

1. 3. $\{-3, 5, 13\}$

6. $\{3, 7, 19\}$

9. $\{0, 2\}$

12. $\{0\}$

15. a. 4

b. -1

c. -4

18. a. 84

b. 21

c. 36

21. a. 8

b. 0

c. 16

24. a. 24

b. 66

c. 0

27. a. 0

b. 1

c. 1

2. a. $D = \{-5, 2, 3\}$

b. $D = \{9, 0, -2\}$

c. $D = \{1, 0, -3\}$

3. 32. a. 2

b. $\{\frac{2}{3}\}$

33. a. 7

b. $\{14\}$

37. a. 0

b. $\{-1, 0, 1\}$

39. a. -1

b. $\{1, -1\}$

4. a. 10 e. -36

b. -4 f. -143

c. -23 g. -1

d. -30 h. $\frac{2}{25}$

8.8 Quadratic Functions

1. a. up, least
- b. down, greatest
- c. down, greatest
- d. down, greatest

2. a. $(0, 4)$
- b. $(-1\frac{1}{2}, 2\frac{1}{4})$ or $(-\frac{3}{2}, \frac{9}{4})$
- c. $(0, 1)$
- d. $(0, 0)$

- 3 a. vertex: $(-1, -5)$
axis: $x = -1$
least: -5
graph attached

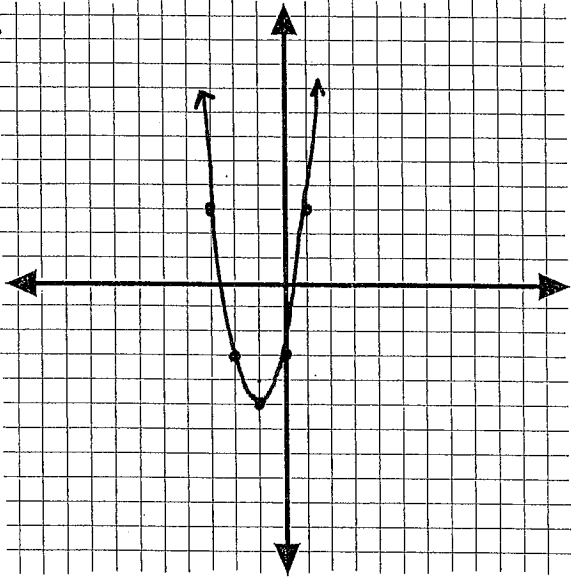
- b. vertex: $(2, 4)$
axis: $x = 2$
greatest: 4
graph attached

- c. vertex: $(-4, 1)$
axis: $x = -4$
greatest: 1
graph attached

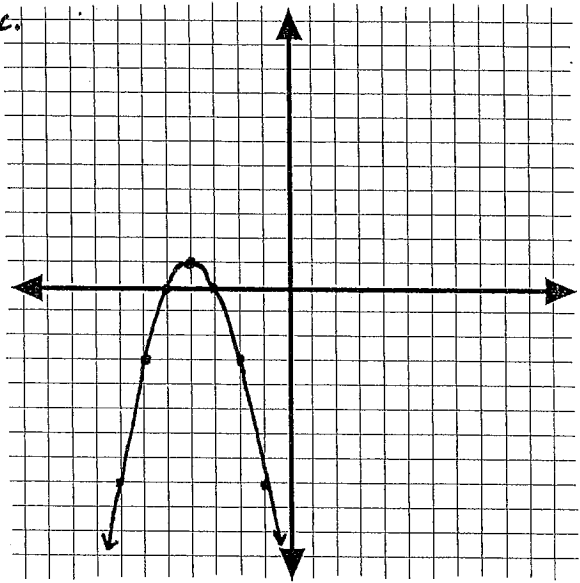
- d. vertex: $(0, 0)$
axis: $x = 0$
least: 0

8.8.

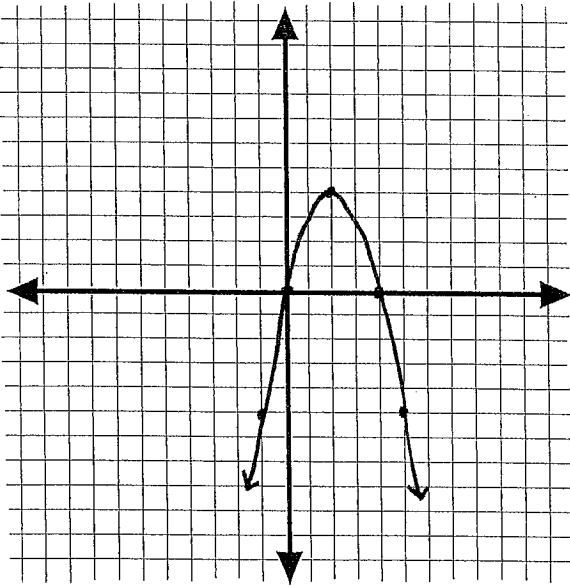
3a.



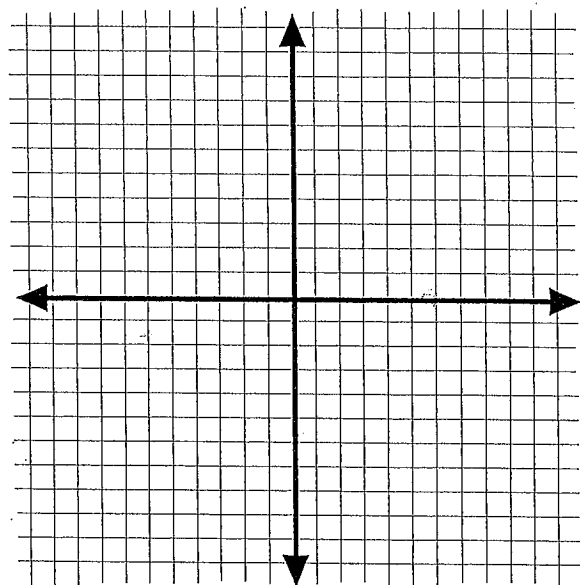
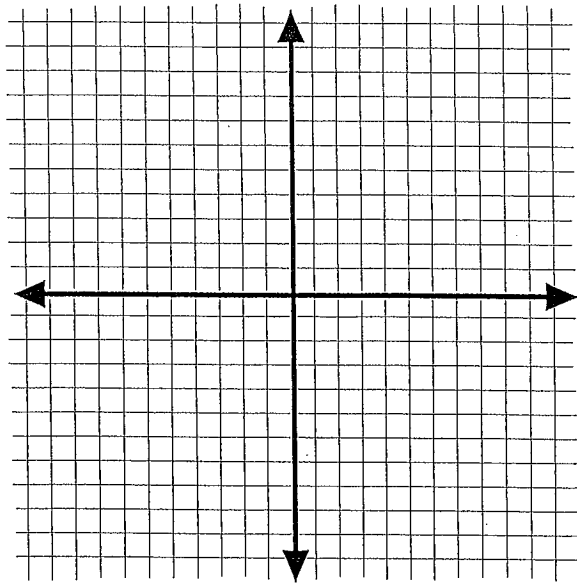
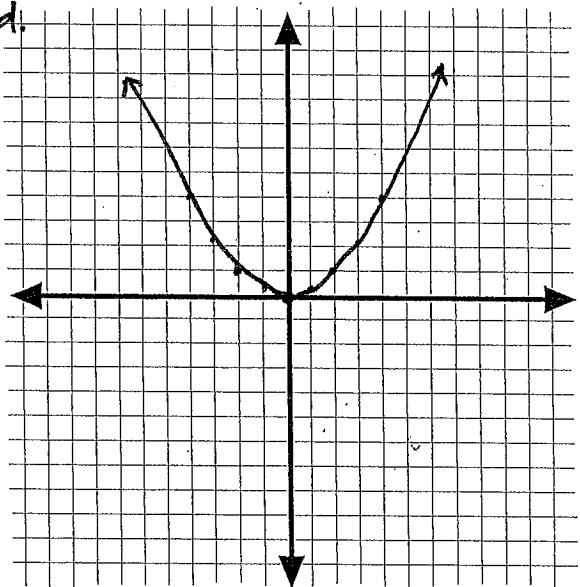
3c.



3b.



3d.



Name Key

Chapter 8 Test: Review Sheet Part I

1. For each equation, find the slope and y-intercept and then graph below:

a. $y = \frac{3}{5}x + 1$ slope: $\frac{3}{5}$ y-intercept: 1

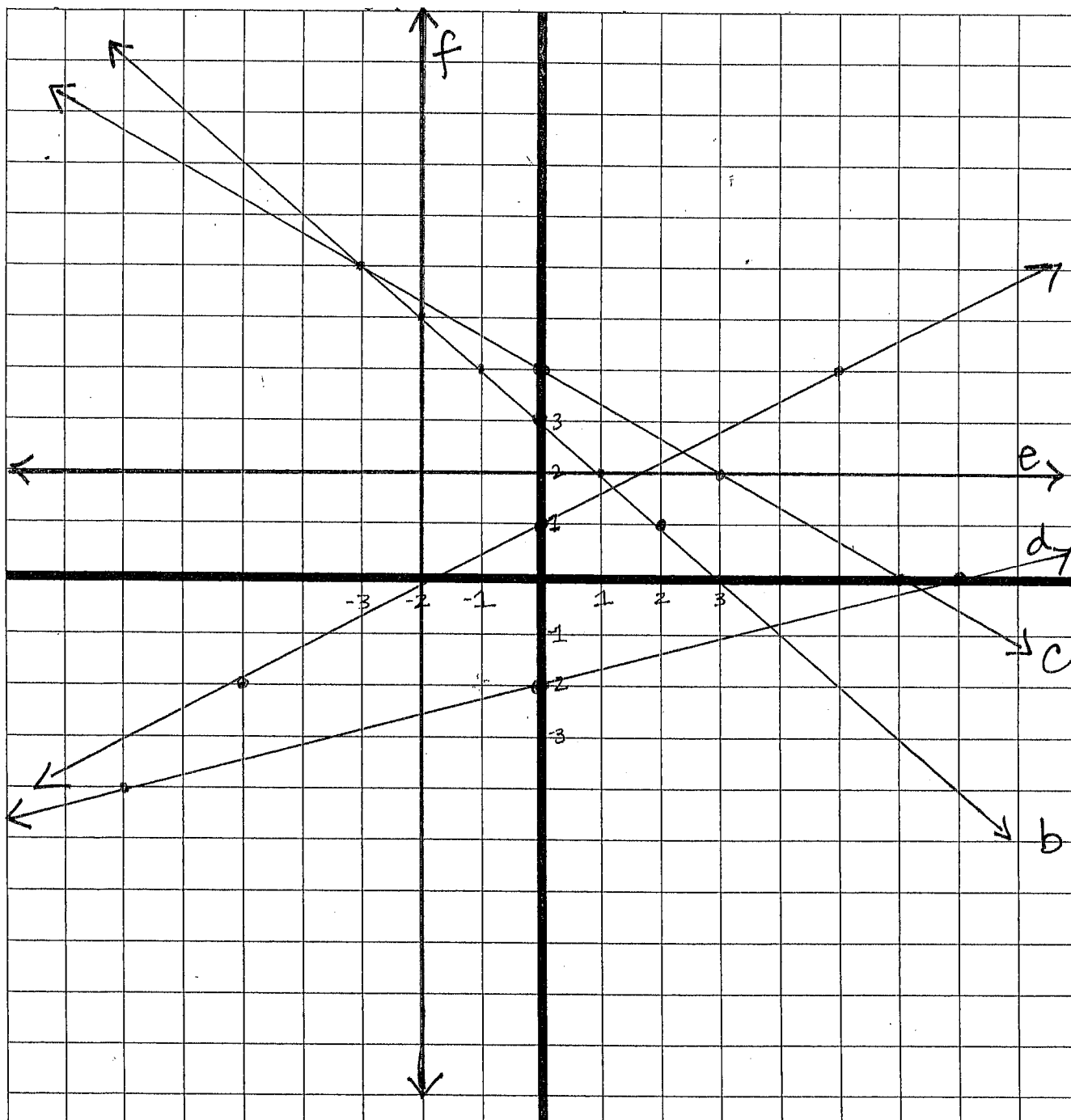
b. $y = -x + 3$ slope: -1 y-intercept: 3

c. $y = 4 - \frac{2}{3}x$ slope: $-\frac{2}{3}$ y-intercept: 4

d. $2x - 7y = 14$ slope: $\frac{2}{7}$ y-intercept: -2

e. $y = 2$ slope: 0 y-intercept: 2

f. $x = -2$ slope: none/undefined y-intercept: none



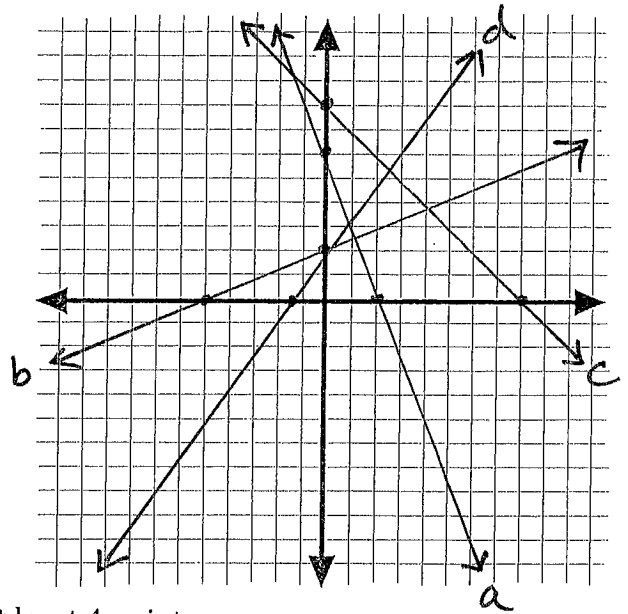
2. Find the intercepts and graph using only intercepts:

a. $3x + y = 6$ x-int: 2 y-int: 6

b. $2x - 5y = -10$ x-int: -5 y-int: 2

c. $\frac{x}{2} + \frac{y}{2} = 4$ x-int: 8 y-int: 8

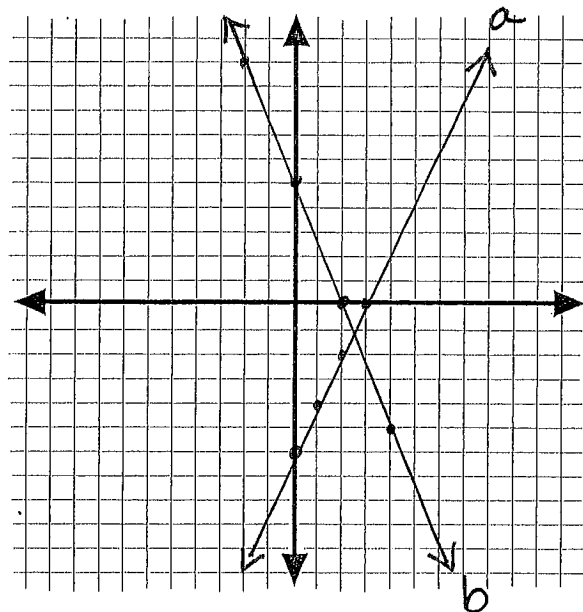
d. $-6 + 3y = 4x$ x-int: $-\frac{3}{2}$ y-int: 2



3. Graph by isolating y and making a table of at least 4 points:

a. $2x - y = 6$ $y = 2x - 6$

x	y
0	-6
1	-4
2	-2
3	0



b. $5x + 2y = 10$ $y = -\frac{5}{2}x + 5$

x	y
0	5
2	0
4	-5
-2	10

4. For the following parabolas, find the vertex, axis of symmetry, greatest/least value, and then graph:

a. $y = -x^2 + 1$

vertex: $(0, 1)$

axis: $x = 0$

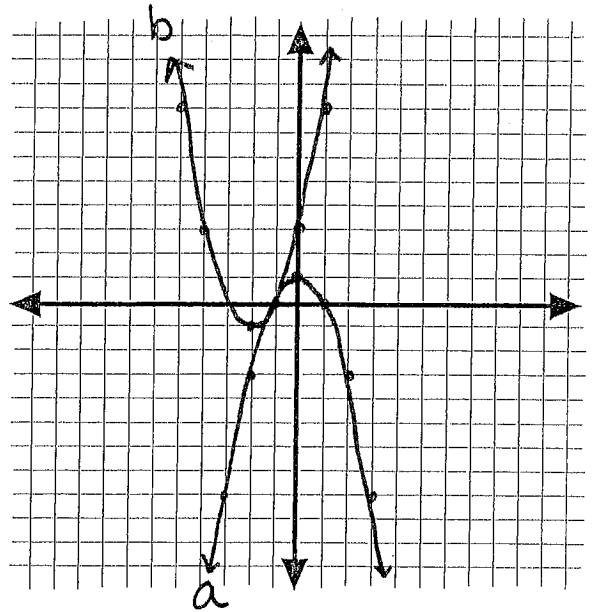
greatest/least value: 1

b. $y = x^2 + 4x + 3$

vertex: $(-2, -1)$

axis: $x = -2$

greatest/least value: -1



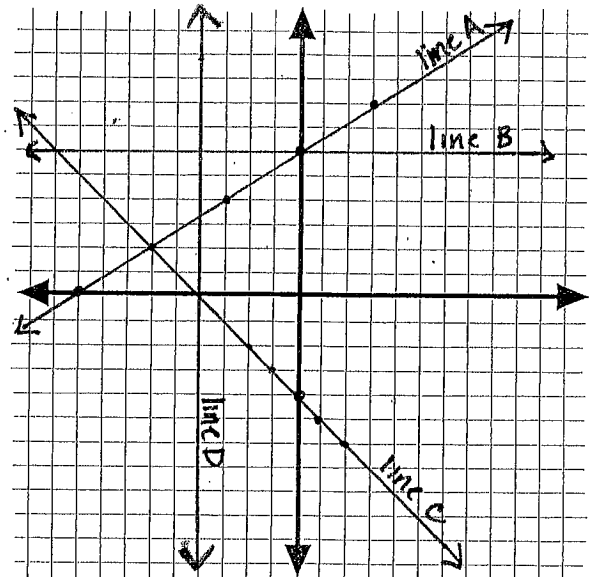
5. Look at the graph and give the equation of each line:

Line A: $y = \frac{2}{3}x + 6$

Line B: $y = 6$

Line C: $y = -x - 4$

Line D: $x = -4$



6. Look at the graph and give the information:

Parabola A:

vertex: $(-3, 4)$

axis: $x = -3$

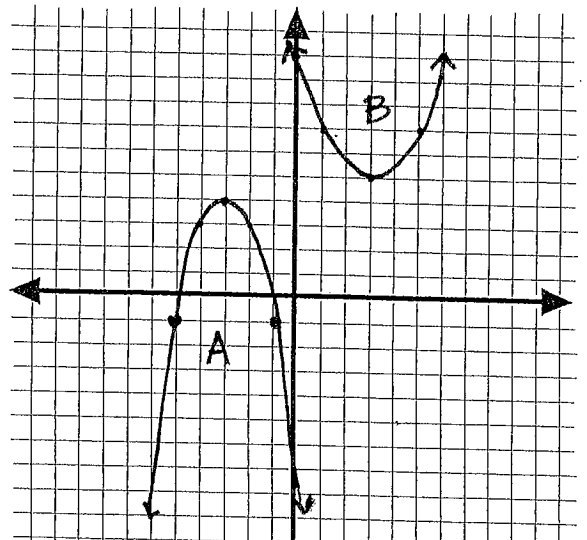
greatest/~~least~~ value: 4

Parabola B:

vertex: $(3, 5)$

axis: $x = 3$

greatest/least value: 5



Review Sheet Part II Answers

1. a. $m = -3$ (2, 0)
 $0 = -3(2) + b$
 $0 = -6 + b$
 $b = 6$
 $y = -3x + 6$

b. $y - 5 = 4(x - 3)$
 $y - 5 = 4x - 12$
 $y = 4x - 7$

c. zero slope \rightarrow horizontal
 $y = 5$

d. $2x + 3y = 6$
 $-2x$ $-2x$
 $3y = -2x + 6$
 $\frac{3y}{3} = \frac{-2x + 6}{3}$
 $y = -\frac{2}{3}x + 2 \rightarrow y\text{-int}$
 points: (0, 2) (2, -1)
 $m = \frac{2 - (-1)}{0 - 2} = \frac{-3}{-2}$
 $y = \frac{3}{2}x + 2$

e. $3x + y = 5$
 $y = -3x + 5$
 so... $m = -3$
 $y - 4 = -3(x - 2)$
 $y - 4 = -3x + 6$
 $y = -3x + 10$

f. $m = \frac{0 + 2}{1 + 1} = \frac{2}{2} = 1$
 using $m = 1$ & point (1, 0)
 $0 = 1(1) + b$
 $-1 = b$
 so... $y = x - 1$
 $-x + y = -1$
 $x - y = 1$

g. $m = -2$, point (3, -2)
 $y + 2 = -2(x - 3)$
 $y + 2 = -2x + 6$
 $y = -2x + 4$
 $2x + y = 4$

2a. $\frac{1}{2}x + 4y = 8$
 $x + 8y = 16$

2b. $3(y = \frac{1}{3}x - 3)$
 $3y = x - 9$
 $-x$ $-x$
 $-x + 3y = -9$
 $x - 3y = 9$

3. a. $\frac{0 + 1}{3 - 3} = \frac{1}{0} = \text{no slope / undefined}$

b. $\frac{2 - 2}{11 + 3} = \frac{0}{14} = 0$

c. $\frac{45 - 11}{100 - 101} = \frac{34}{-1} = -34$

4. Line a is vertical.
 Line b is horizontal.

5. slope between (-5, 9) & (-1, 1)
 $\frac{9 - 1}{-5 + 1} = \frac{8}{-4} = -2$
 slope between (-1, 1) & (1, -4)
 $\frac{1 - 4}{-1 - 1} = \frac{-3}{-2} = \frac{3}{2}$
 so... **No**
 (different slopes)

6. $2x - 3y = 18$
 $-2x$ $-2x$
 $-3y = -2x + 18$
 $\frac{-3y}{-3} = \frac{-2x + 18}{-3}$
 $y = \frac{2}{3}x - 6$
 $m = \frac{2}{3}$

7. $\frac{3 + 1}{x - 2} = \frac{4}{3}$ so... $\frac{4}{x - 2} = \frac{4}{3}$
 $12 = 4(x - 2)$
 $12 = 4x - 8$
 $20 = 4x$
 $x = 5$

8. $y = \frac{3}{4}x - 1$
 $m = 3/4$
 $3y + 4x = 7$
 $3y = -4x + 7$
 $y = -\frac{4}{3}x + \frac{7}{3}$
 $m = -4/3$
yes... \perp

9. $2x - y = 0$
 $2x = y$
 $m = 2$
 $2x - 6y = 4$
 $-6y = -2x + 4$
 $y = \frac{1}{3}x - \frac{2}{3}$
 $m = 1/3$
no... not \parallel

10. axis: $x=1$
greatest: 1
(it opens down because of $-x^2$)

11. a. $f[g(1)]$

$$g(1) = 1^2 + 3(1) + 2$$

$$g(1) = 6$$

$$\text{then... } f(6) = 2(6) + 1 \\ = \boxed{13}$$

b. $g(-1) + f[g(-2)]$

$$\left[(-1)^2 + 3(-1) + 2 \right] + f\left[(-2)^2 + 3(-2) + 2 \right]$$

$$0 + f(0)$$

$$2(0) + 1 = \boxed{1}$$

c. $0 = 2x + 1$

$$\boxed{x = -\frac{1}{2}}$$

d. $0 = x^2 + 3x + 2$

$$0 = (x+2)(x+1)$$

$$\boxed{x = -2, -1}$$

12. $y = -4x + 7$ $(3, 1)$?

$$1 = -4(3) + 7$$

$$1 = -12 + 7$$

$$1 = -5$$

No

13. a. yes - function

b. yes - function

c. no - not a function

d. yes - function