

JMJ



St. Patrick Catholic School
Summer Math Packet
for rising Geometry Students

Dear Parents & Students,

Enclosed is a math packet which is required to be completed by students over the summer. The St. Patrick School Math Committee would like to give you some guidance on how to use this math packet.

Please note the following:

- This math packet is meant as a review of the previous year's concepts. No new material is presented here.
- The purpose of this packet is to maintain regular math practice over the summer, so it is not recommended that it be completed all at once.
- The intent is to spread the work out over a 10 week period. Answers for each week are also enclosed for the student to check his/her work and make corrections as necessary.
- Students should complete the work in a notebook or loose leaf paper making sure to label each week, box pages, and number problems, showing work and corrections as they do in class.
- Math packets and the answers will be collected the first week of school.
- If a student struggles with this packet, please let his/her teacher know.

Students may also benefit from visiting the following sites to maintain and improve math fact fluency:

- Xtramath.org
- Prodigygame.com
- IXL.com
- Math-drills.com

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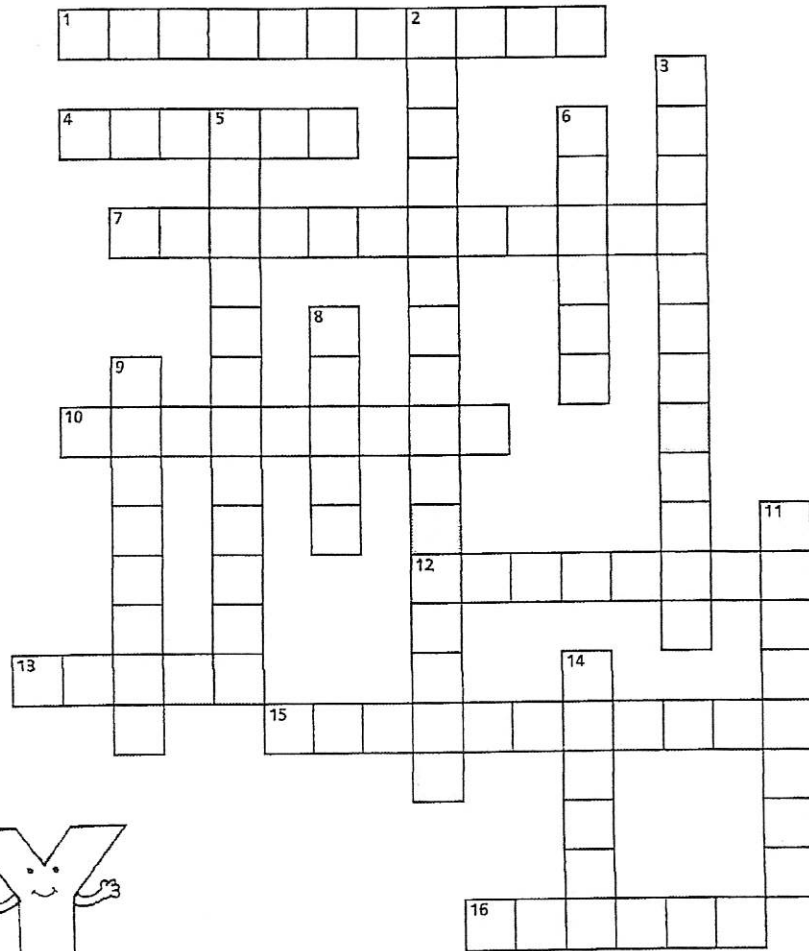
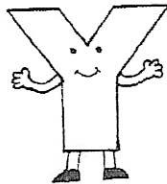
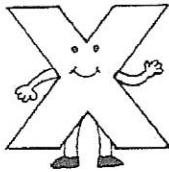
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Week 10:

Cumulative Review – Chapters 4-5, pages 89-90

Answer Key

Word Box
 coordinate plane
 function
 graph
 linear
 negative
 ordered pair
 origin
 positive
 quadrants
 slope
 x-axis
 x-coordinate
 x-intercept
 y-axis
 y-coordinate
 y-intercept



Across

1. The point at which a graph intersects the x -axis.
4. The vertical axis in a coordinate plane.
7. The second number in an ordered pair.
10. The x -axis and the y -axis divide a coordinate plane into four _____.
12. In Quadrant I, both the x - and y -coordinates are _____.
13. The _____ of a line, also called *rise-over-run*, measures the steepness.
15. The point at which a graph intersects the y -axis.
16. A _____ equation is one whose graph on the coordinate plane is a line.

Down

2. The plane formed by two number lines that intersect at right angles.
3. A pair of numbers, such as $(3, -6)$, that tells the location of a point.
5. The first number in an ordered pair.
6. The horizontal axis in a coordinate plane.
8. A pictorial representation of a mathematical relationship.
9. A relation in which every x -value has a unique y -value.
11. In Quadrant II, the x -coordinates are _____ and the y -coordinates are positive.
14. The point where the x - and y -axes intersect; its coordinates are $(0, 0)$.

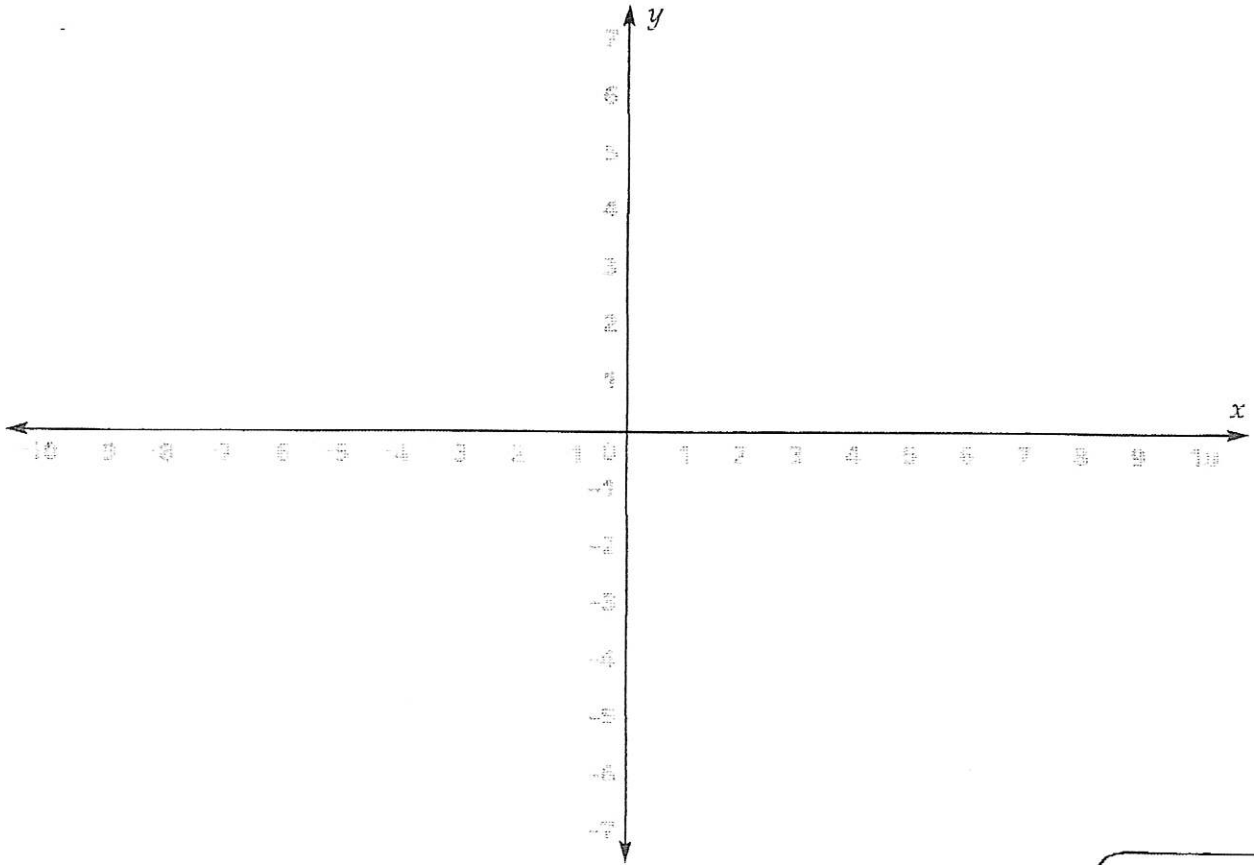
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Graphing Points

Remember

The first number in an ordered pair is the x -coordinate. It tells how far to move across from the origin. A positive number means *go right*. A negative number means *go left*.

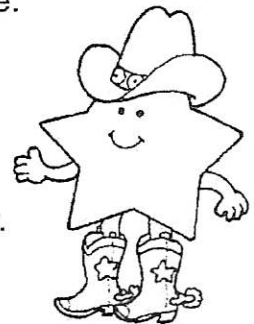
The second number in an ordered pair is the y -coordinate. It tells how far to move up or down. A positive number means *go up*. A negative number means *go down*.



Follow the steps to draw and color the state flag of Texas.

1. To make a rectangle, plot and connect these points in order. Color it red.
 $(-3, 0)$ $(3, 0)$ $(9, 0)$ $(9, -6)$ $(3, -6)$ $(-3, -6)$ $(-3, 0)$
2. Plot and connect these points to make another rectangle. Leave it white.
 $(-3, 0)$ $(-3, 6)$ $(3, 6)$ $(9, 6)$ $(9, 0)$ $(3, 0)$ $(-3, 0)$
3. Plot and connect these points to make a star. Leave it white.
 $(-8, 1)$ $(-6.5, 1)$ $(-6, 2.5)$ $(-5.5, 1)$ $(-4, 1)$ $(-5, 0)$ $(-4.5, -1.5)$
 $(-6, -0.5)$ $(-7.5, -1.5)$ $(-7, 0)$ $(-8, 1)$
4. Plot and connect these points to make a rectangle surrounding the star. Color its background dark blue.
 $(-9, 0)$ $(-9, 6)$ $(-3, 6)$ $(-3, 0)$ $(-3, -6)$ $(-9, -6)$ $(-9, 0)$

-6.5 is
halfway
between
-6 and -7

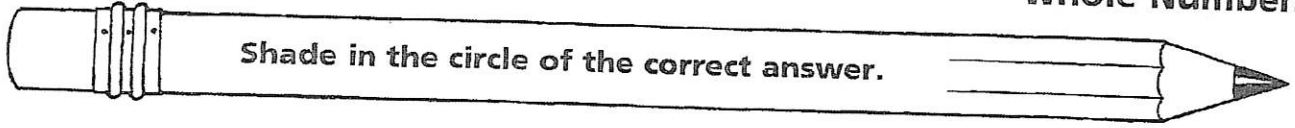


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Assessment A

Whole Numbers



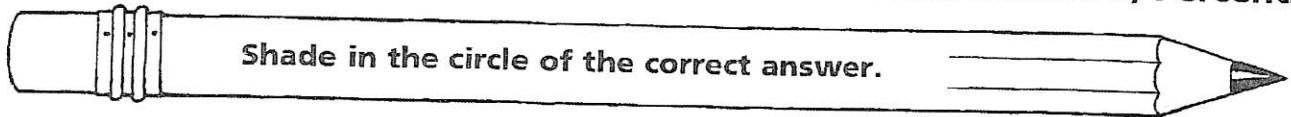
1. Which equation shows the commutative property of addition?
- (A) $72 + 0 = 72$
(B) $72 + 28 = 28 + 72$
(C) $72 + -72 = 0$
(D) $(72 + 28) + 5 = 72 + (28 + 5)$
2. What is the value of 4^3 ?
- (A) 12 (B) 16
(C) 32 (D) 64
3. What is $\sqrt{225}$?
- (A) 14
(B) 15
(C) 25
(D) None of these answers.
4. Find the value of $9 + 12 \div 3 - 1$.
- (A) 12 (B) $10\frac{1}{2}$
(C) 6 (D) 15
5. Which expression has a value of 21?
- (A) $3 \cdot 2^2 + 12 \div 4$
(B) $(3 \cdot 2)^2 + 12 \div 4$
(C) $3 \cdot (2^2 + 12 \div 4)$
(D) $3 \cdot (2^2 + 12) \div 4$
6. Given $x = 5$, $y = 2$, and $z = 4$, evaluate the expression:
- $$\frac{4x + z}{y}$$
- (A) 12 (B) 14
(C) 18 (D) 22
7. Which equation matches "one more than twice a number is seven"?
- (A) $1 + (n + 2) = 7$
(B) $2n + 1 = 7n$
(C) $1 + 2 = 7$
(D) $2n + 1 = 7$
8. Solve for x . $5x = 15$
- (A) $x = 75$ (B) $x = 10$
(C) $x = 3$ (D) $x = 20$
9. Solve for x . $2x + 3 = 21$
- (A) $x = 12$ (B) $x = 18$
(C) $x = 9$ (D) $x = \frac{23}{2}$
10. Which inequality matches the graph?
-
- (A) $x > 3$ (B) $x < 3$
(C) $x \geq 3$ (D) $x = 3$

Name _____

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Assessment B

Fractions, Decimals, Percents



1. Which decimal is equivalent to 3×10^{-2} ?

- (A) 0.03
- (B) 0.003
- (C) -300.0
- (D) -0.006

2. Which percent is equivalent to the decimal 0.2?

- (A) 0.2%
- (B) 2%
- (C) 20%
- (D) 200%

3. Which fraction is equivalent to 85%?

- (A) $\frac{2}{3}$
- (B) $\frac{3}{4}$
- (C) $\frac{7}{8}$
- (D) None of these answers.

4. Solve:

15 is 60% of what number?

- (A) 9
- (B) 21
- (C) 25
- (D) 90

5. Add $4\frac{1}{2} + 3\frac{5}{7}$.

- (A) $7\frac{6}{9}$
- (B) $8\frac{3}{14}$
- (C) $7\frac{3}{14}$
- (D) $\frac{3}{14}$

6. Which expression is equal to $\frac{17}{24}$?

- (A) $\frac{18}{30} - \frac{1}{6}$
- (B) $\frac{2}{3} - \frac{3}{8}$
- (C) $\frac{1}{6} - \frac{3}{4}$
- (D) $\frac{5}{6} - \frac{1}{8}$

7. Which expression is equal to $\frac{3}{5}$?

- (A) $\frac{6}{25} \cdot \frac{5}{12}$
- (B) $2 \cdot \frac{3}{10}$
- (C) $\frac{3}{5} \cdot \frac{1}{5}$
- (D) $\frac{1}{3} \cdot 5$

8. Divide $\frac{5}{12} \div \frac{2}{3}$.

- (A) $\frac{10}{4}$
- (B) $\frac{5}{18}$
- (C) $\frac{5}{8}$
- (D) $\frac{3}{4}$

9. Solve for x. $5x = \frac{10}{11}$

- (A) $x = \frac{2}{11}$
- (B) $x = \frac{45}{11}$
- (C) $x = \frac{50}{11}$
- (D) $x = \frac{55}{11}$

10. Solve for x. $x + \frac{1}{3} = \frac{8}{9}$

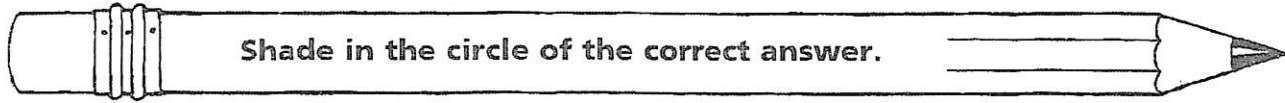
- (A) $x = \frac{11}{9}$
- (B) $x = \frac{5}{9}$
- (C) $x = \frac{7}{6}$
- (D) $x = 3\frac{8}{9}$

Name _____

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Assessment C

Integers



1. Which number is equal to $|-4|$?

- (A) -4 (B) 4
(C) -16 (D) $\frac{1}{4}$

2. What is $-29 + -7$?

- (A) -22 (B) 22
(C) -36 (D) 36

3. What is $12 - 30$?

- (A) -42
(B) 18
(C) 42
(D) None of these answers.

4. Which expression is equal to -81 ?

- (A) 9^2 (B) $3(-27)$
(C) $-3 \cdot -3 \cdot -3 \cdot -3$ (D) $-9(-9)$

5. What is $-56 \div -8$?

- (A) 7 (B) -7
(C) 8 (D) -8

6. Follow the order of operations to find the value of $3 + -15 \div 3$.

- (A) -2 (B) -4
(C) -6 (D) -8

7. Given $x = -6$, $y = 9$, and $z = -2$, evaluate the expression $x^2 + z$.

- (A) -38 (B) 38
(C) -14 (D) 34

8. Given $x = -6$, $y = 9$, and $z = -2$, evaluate the expression.

$$\frac{-5y - x}{y - 2z}$$

- (A) -3 (B) 3
(C) $\frac{43}{5}$ (D) $-\frac{51}{5}$

9. Solve for x . $x + 20 = -25$

- (A) $x = -5$ (B) $x = -45$
(C) $x = 5$ (D) $x = 45$

10. Solve for x . $\frac{x}{6} = -12$

- (A) $x = -2$ (B) $x = 2$
(C) $x = -72$ (D) $x = 72$

11. Solve for x . $-8x - 4 = -20$

- (A) $x = 2$ (B) $x = 3$
(C) $x = -2$ (D) $x = -3$

12. Solve for x . $\frac{x}{5} + 10 = 0$

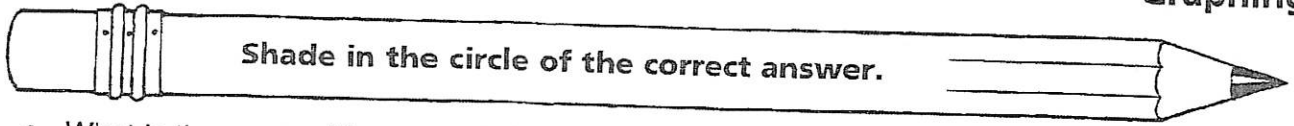
- (A) $x = 0$ (B) $x = -10$
(C) $x = -2$ (D) $x = -50$

Name _____

Date _____ Score _____ %

Assessment D

Graphing



1. What is the name of the point (0, 0), where the x - and y -axes intersect?

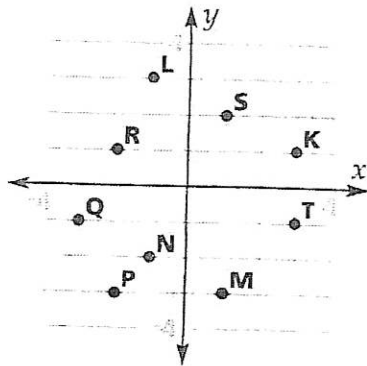
- (A) double goose egg
- (B) slope
- (C) origin
- (D) center-intercept

2. Which ordered pair represents a point on the x -axis?

- (A) (0, 5)
- (B) (5, 0)
- (C) (5, 5)
- (D) (-5, -5)

3. Which letter is at the point (3, -1)?

- (A) Q
- (B) K
- (C) L
- (D) T



4. Which is the ordered pair for point R?

- (A) (2, -1)
- (B) (-2, 1)
- (C) (1, -2)
- (D) (-2, -1)

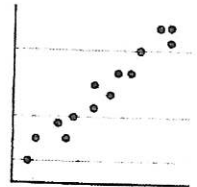
5. Which equation matches the table?

- (A) $y = x + 1$
- (B) $y = x - 1$
- (C) $y = 2x$
- (D) $y = -2x$

x	y
-1	-2
0	0
1	2
2	4

6. This scatterplot shows a

- (A) positive trend.
- (B) negative trend.
- (C) function.
- (D) no trend.



7. Which term refers to the steepness of a line?

- (A) quadrant
- (B) intercept
- (C) linear
- (D) slope

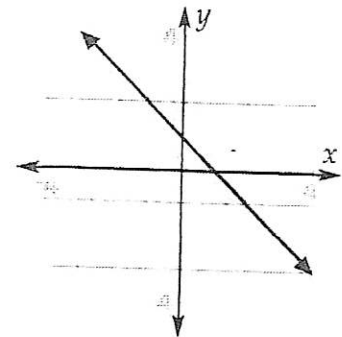
8. At what point will the line of this equation cross the y -axis? $y = 3x - 2$

- (A) (0, -2)
- (B) (3, -2)
- (C) (3, 0)
- (D) (-2, 0)

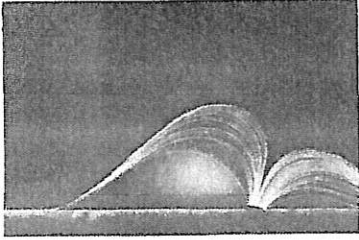
9. Solve for y to write this equation in slope-intercept form: $4y - 20x = 8$

- (A) $y = 4x + 2$
- (B) $y = -5x + 2$
- (C) $y = 5x + 2$
- (D) $y = -4x + 4$

10. Which equation matches the graph?



- (A) $y = x + 1$
- (B) $y = -x + 1$
- (C) $y = x - 1$
- (D) $y = -2x + 1$



Review Chapters 2–4

CHAPTER 2

1. List the terms, coefficients, and like terms:

$$-3x + 2y - x + 19 - 4$$

2. In problem 1, collect like terms.

3. Distribute the number or negative sign:

a. $-4(3y - 2x + 1)$

c. $-1(x - 2)$

b. $(6p - 1)7$

d. $-(y - 4x + 1 - p)$

4. Simplify:

a. $17 + 2(x - 5)$

b. $-4(p - 2) + p$

c. $-8a - 4(3 - 2a)$

d. $-(3a - 6) + 5a$

e. $4 - (-y + 7)$

f. $-(x - 2y + 3x) + 2(3x + y)$

CHAPTER 3

1. a. Is 9 a solution to $5x - 40 = 5$?

- b. Is -4 a solution to $x - 4 = -8$?

- c. Is 0 a solution to $5x - 5 = 0$?

- d. Is 0 a solution to $25x = 0$?

2. Solve:

a. $14 = 3 + y$

e. $4x = 20$

i. $6 = -y$

b. $x - 4 = 0$

f. $-7x = 14$

j. $0 = 10x$

c. $-3 + p = 2$

g. $4x = 3$

k. $\frac{1}{2}x = 9$

d. $a + 5 = 5$

h. $-7 = -5y$

l. $-\frac{3}{2}x = \frac{1}{4}$

3. Solve:

a. $-x + 7 = 10$

e. $2y + 1 = y + 10$

i. $-9(x - 2) = 0$

b. $-4 - y = 1$

f. $5p + 4 = 2p - 5$

j. $5m = 2 - 3(m - 2)$

c. $2x + 1 = 6$

g. $4x = 3x$

k. $-(a - 3) = 4$

d. $5x + 2 = -8$

h. $2(5y - 3) = 4$

l. $4x - (x - 1) = 2(x + 3)$

4. Solve.

a. $\frac{3}{2}x = 4$

LCM = 2.

b. $8\left(\frac{1}{2} + \frac{x}{4}\right) = 1$

Distribute first.

c. $\frac{1}{6}x - 2 = \frac{2}{3}$

LCM = 6.

CHAPTER 41. Fill in $<$ or $>$:

a. $-5 \square 0$

b. $-7 \square -3$

c. $-2 \square 1$

2. a. Is 2 a solution to $5x + 1 \geq 4$?b. Is 3 a solution to $4x - 10 \leq 2$?c. Is 3 a solution to $-x + 6 \geq 6$?

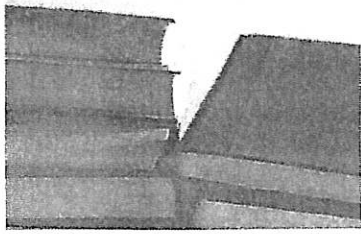
3. Solve and graph:

a. $y + 4 > 3$

c. $-3x \leq 6$

b. $5p \leq -10$

d. $2x - 1 < 5$



Review: Chapters 5–7

CHAPTER 5

Use the Rules of Exponents to simplify the following.

1. $x^8 \cdot x^3$

7. $y^4 \cdot y$

12. $x^{-7} \cdot x^{-2}$

2. $(z^6)^3$

8. $\frac{z^6}{z^5}$

13. $\frac{y^5}{y^{10}}$

3. $\frac{y^{10}}{y}$

9. $(2^4)^5$

14. $(x^{-2})^5$

4. p^0

10. $\frac{4^5}{4^4}$

15. $y^{-5} \cdot y$

5. x^{-5}

11. 19^0

16. $\frac{z}{z^{-5}}$

6. $(xy)^4$

CHAPTER 6

State whether the following are monomials, binomials, or trinomials. Also state the degree of each polynomial.

1. $x^5 - 4$

3. $14xy$

2. $y - x + 2$

4. $x^2y^4 + z$

Collect like terms.

5. $x^2 + 6x + 2x - 1$

7. $yx^2 + z - 4yx^2$

6. $4x + 3 - 9x - 9$

8. $5y^4 + 7x - 5y^4 - 7x$

Add or Subtract.

9. $(2x^2 + y) + (x^2 - y)$

11. $(y^4 + y + 1) - (y^4 - 2y + 6)$

10. $(4xy - 7) + (3xy + y)$

12. $(x^3 + x) - (1 + x)$

Multiply.

13. $(2)(xy)$

17. $2(x + y + 3)$

21. $(x + 1)(x + y + 1)$

14. $(x)(x)$

18. $x(x^2 + 1)$

22. $(y - 1)(y^2 - 2y + 3)$

15. $(2y^2)(3y)$

19. $-3y(y^2 - 2y + 1)$

16. $(-6xy^3)(2xy^2)$

20. $2xy(x^2 - y^2)$

Multiply by FOIL.

23. $(x + 1)(x + 8)$

25. $(2x + 6)(x + 9)$

24. $(y - 3)(y - 7)$

26. $(3x - 4y)(2x - y)$

Multiply by the Difference-of-Squares.

27. $(x + 3)(x - 3)$

29. $(2x + 3y)(2x - 3y)$

28. $(y - 10)(y + 10)$

30. $(A + B)(A - B)$

Square the binomials.

31. $(x + 4)^2$

33. $(2x - 3y)^2$

32. $(y - 5)^2$

34. $(A + B)^2$

CHAPTER 7

List the factors of each.

1. $x \cdot x = x^2$

3. $(x + 1)(x + 2) = x^2 + 2x + x + 2$

2. $x(x + 5) = x^2 + 5x$

4. $y^2 - 5y + 6 = (y - 2)(y - 3)$

Find the GCF.

5. 12, 18

8. $x(x + 3), (x + 3)$

6. x^4, x^3, x^2

9. xyz, xy, yz

7. xy^2, x^2y

10. $2p^2, 3p, 2$

Fill in the missing factors.

11. $10 = (2)(\quad)$

15. $9(\quad + \quad) = 9 \cdot 4 + 9 \cdot 5$

12. $8y = (\quad)(2)$

16. $9(\quad) = 9x + 18$

13. $x^6 = (x^4) (\quad)$

14. $y = (\quad) (y)$

Factor out the GCF.

19. $3x^3 + 6x + 9$

20. $x^3 + 5x^2 + x$

Factor by grouping.

23. $x^2 + 2x + 3x + 6$

Factor these trinomials.

24. $x^2 + 7x + 12$

25. $3y^2 - 5y + 2$

26. $2x^2 + 14x + 20$

27. $x^2 + 3xy + 2y^2$

28. $y^2 + 10y + 2$

Solve these equations.

34. $x^2 + 7x + 12 = 0$

35. $7y^2 - 28 = 0$

36. $x^2 - 3x = 0$

17. $3(\quad) = 3x - 24$

18. $-4(\quad) = -4z + 40$

21. $7x + 7y + 7z$

22. $(x + 2) \cdot x + (x + 2) \cdot 3$

Factor these binomials.

29. $x^2 - 25$

30. $y^2 - 100$

31. $7y^2 - 28$

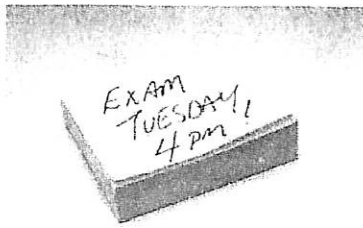
32. $y^2 + 1$

33. $4y^2 - 25$

37. $2x^2 + 15x = -7$

38. $x^2 = 3x - 2$

39. $14x^2 = x$



Cumulative Review: Chapters 2–7

Simplify.

1. $x + 5y - 5y$

3. $-(x - 3x + 2)$

5. $-3(x + 2y) + x + y$

2. $-2 + 7x + 10$

4. $7 + 2(y + 4)$

6. $10 - (4p + 5) + 2p$

Solve.

7. $x + 5 = 9$

11. $9(p + 1) = 8p - 1$

8. $5x = 10$

12. $-(x - 1) = 1$

9. $4x - 7 = 13$

13. $2(x - 6) + x = 12$

10. $4a = 2a + 10$

14. $\frac{1}{6}x - 2 = \frac{2}{3}$

Solve.

15. $-2p \leq -8$

16. $6x - 9 \leq 0$

Simplify.

17. $2^3 \cdot 2^{10}$

18. $(2^3)^{10}$

19. $\frac{2^{10}}{2^3}$

20. x^{-3}

21. $\left(\frac{z}{x}\right)^3$

Simplify.

22. $7x + 3y - x + 2 + 8$

23. $(4y - 3x) - (2 + y - x)$

24. $x^2 + 3x + 1 + 3x^2 + x + 1$

Multiply.

25. $(4x)(2x^2)$

27. $x(x^2 + 2x + 1)$

29. $(7x - 2)(x + 1)$

26. $-3(x - y + 1)$

28. $(x + 1)(x + 1)$

30. $(8y + 1)(2y + 4)$

Factor.

31. $x^2 - 4$

34. $2y^2 + 7y + 3$

32. $x^2 - 4x + 4$

35. $4x^2 - 4$

33. $3x + 3y + 3z$

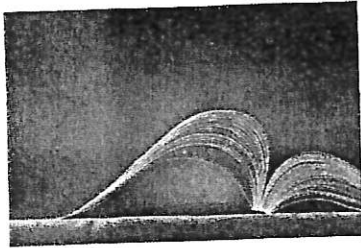
36. $6y^2 - 8y + 2$

Solve.

37. $x^2 + 2x = 0$

38. $-x^2 + 9 = 0$

39. $2y^2 + 7y + 3 = 0$



Review Chapters 1–3

CHAPTER 1

1. Plot these ordered pairs:

- A.** (2,4) **B.** (-3,1) **C.** (3,-1) **D.** (-5,-5) **E.** (0,-3)

2. Which are solutions to $3x - 4y + 1$?

- A.** (0,2) **B.** (-1,-1) **C.** (7,5)

3. **A.** Graph $y = 2x - 3$ by the point plotting method.

B. Graph $-3x + 2y = 6$ by using zeros.

C. Graph $y = -2$.

4. Use the slope formula to find the slope of a line which passes through (1,1) and (5,-2).

5. Determine the slope and y-intercept of each:

A. $y = 9x + 1$

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

C. $2x + y = 3$

6. Use the slope intercept method to graph the lines in Parts A and B of Exercise 3: that is, $y = 2x - 3$ and $-3x + 2y = 6$.

7. Use $y = mx + b$ to find the equation of a line which passes through (2,-1) with the slope of $-\frac{1}{2}$.

CHAPTER 2

Determine whether or not the ordered pairs are solutions to the system.

1. $5x - 4y = 2$
 $-2x + y = 1$

- A.** (2,2) **B.** (-2,-3)

2. $x = y + 2$
 $3x - 3y = 6$

- A.** (2,0) **B.** (-5,-3)

3. Solve: $5x - 4y = 2$
 $-2x + y = 1$

Using **(a.)** substitution and **(b.)** addition methods.

4. Solve: $x = y + 2$
 $3x - 3y = 6$

By **(a.)** graphing, **(b.)** substitution, and **(c.)** addition methods.

CHAPTER 3

1. Reduce.

A. $\frac{x}{x \cdot y}$

B. $\frac{x}{x^2+3x}$

C. $\frac{x^2-25}{x+5}$

D. $\frac{x^2-5x+6}{x^2-2x}$

2. Multiply or divide.

A. $\frac{x}{x+1} \cdot \frac{5x+5}{x^2+x}$

B. $\frac{x^2+7x+10}{x^2+2x+1} \div \frac{(x+5)}{(x+1)}$

3. Add or subtract.

A. $\frac{5}{x+1} + \frac{5}{x^2+x}$

B. $\frac{2}{x^2-4} + \frac{1}{x+2}$

C. $\frac{1}{x} - \frac{1}{y}$

4. Simplify.

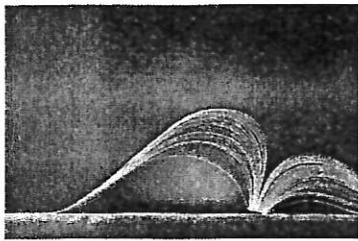
A. $\frac{\frac{1}{x} + \frac{1}{y}}{\frac{1}{xy}}$

B. $\frac{\frac{1}{2x-10} + \frac{3}{x-5}}{\frac{1}{2}}$

5. Solve.

A. $\frac{1}{x} + \frac{1}{3} = \frac{8}{x}$

B. $\frac{4}{x-3} + \frac{1}{x} = \frac{2}{x^2-3x}$



Review Chapters 4–5

CHAPTER 4

1. Simplify.

A. $\sqrt{64}$	B. $-\sqrt{9}$	C. $\sqrt{27}$	D. $\sqrt{72}$	E. $\sqrt{x^6}$
F. $\sqrt{12y^4}$	G. $\sqrt{x^5}$	H. $\sqrt{3y^7}$	I. $\sqrt{18x^{10}y}$	J. $\sqrt{6^2}$
K. $\sqrt{x \cdot x}$	L. $\sqrt{500}$	M. $\sqrt{392}$		

2. Multiply.

A. $\sqrt{2} \cdot \sqrt{10}$	B. $\sqrt{7} \cdot \sqrt{7}$	C. $\sqrt{3} \cdot \sqrt{15x}$
D. $\sqrt{x} \cdot \sqrt{x}$	E. $\sqrt{y} \cdot \sqrt{y^3}$	F. $\sqrt{4xy} \cdot \sqrt{12xy}$

3. Combine like terms.

A. $5\sqrt{x} + 7\sqrt{x}$	B. $\sqrt{18} + \sqrt{2}$	C. $\sqrt{27x} - \sqrt{48x}$
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4. Simplify. Rationalize the denominator when needed.

A. $\frac{\sqrt{4}}{\sqrt{9}}$	B. $\sqrt{\frac{27}{48}}$	C. $\sqrt{\frac{4x^2}{16}}$	D. $\frac{\sqrt{6xy}}{\sqrt{3xy}}$	E. $\frac{5}{\sqrt{2}}$
F. $\sqrt{\frac{14}{4}}$	G. $\frac{10}{\sqrt{x}}$	H. $\frac{3}{\sqrt{3}}$	I. $\frac{\sqrt{6x}}{\sqrt{12}}$	J. $\frac{5y}{\sqrt{y}}$

5. Solve.

A. $\sqrt{x} = 5$	B. $2\sqrt{y} - 11 = 1$	C. $\sqrt{3x+7} + 2 = 3$
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CHAPTER 5

1. Use the Square Root Method to solve:

A. $x^2 = 8$

B. $7x^2 - 10 = -3$

C. $2(x-3)^2 - 5 = 13$

2. Use the Zero Product or Quadratic Formula to solve:

A. $x^2 - 8x = 0$

B. $x^2 - 4 = 0$

C. $x^2 - 7x + 12 = 0$

D. $3x^2 - 5x = 2$

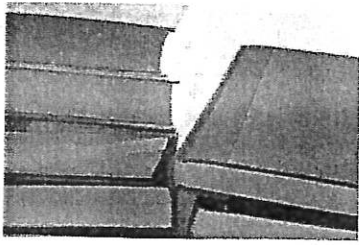
E. $x^2 + 3x + 1 = 0$

F. $x^2 + 7 = 0$

G. $x^2 + x = 1$

H. $2x^2 - 3x + 1 = 0$

I. $21x^2 + 41x + 10 = 0$



Cumulative Review

CHAPTER 1

- Determine the slope and y -intercept of each:
 - $y = -3x + 7$
 - $y = \frac{4}{5}x - 6$
 - $y = -x$
 - $y - 5x = 1$
Solve for y first.
 - $2y = 6x$
 - $\frac{1}{2}y = x + 8$
- Graph $y = 2x - 4$ by the point plotting method.
- Graph $y = 2x - 4$ by using zeros.
- Graph $y = 2x - 4$ by the slope intercept method.
- Find the slope of a line which passes through the points $(-5, -3)$ and $(0, 2)$.
- Write the equation of a line which passes through $(0, 1)$ with a slope of -3 .

CHAPTER 2

- Solve: $x + y = 0$ by the graphing method.
 $x - y = 0$
- Solve the system in Exercise 7 by substitution.
- Solve the system in Exercise 7 by the addition method.
- Solve: $x + 2y = -5$
 $2x - y = 5$
 - Using graphing.
 - Using substitution.
 - Using addition.
- Solve: $x + y = 2$ By any method.
 $2x + 2y = 3$
- Solve: $2x - 6y = 2$ By any method.
 $3x - 9y = 3$

CHAPTER 3

13. Reduce:

A. $\frac{x}{xy}$

B. $\frac{2x+4}{4}$

C. $\frac{x-3}{5x-15}$

D. $\frac{x^2+9x}{x}$

E. $\frac{x-2}{x^2-2x}$

F. $\frac{x+1}{x^2+7x+6}$

14. Multiply and divide:

A. $\frac{x}{x+7} \cdot \frac{x+7}{1}$

B. $\frac{x}{2x+10} \cdot \frac{2}{x}$

C. $\frac{x^2+9x+14}{(x+1)} \div \frac{(x+7)}{(x+1)}$

D. $\frac{y^2-y}{1} \div \frac{y^2-1}{3}$

15. Add or subtract:

A. $\frac{1}{x} + \frac{1}{2}$

B. $\frac{1}{x-5} - \frac{5}{x(x-5)}$

C. $\frac{x}{x^2+2x+1} + \frac{1}{x+1}$

16. Simplify: $\frac{\frac{1+1}{x+2}}{\frac{1}{2x}}$

17. Solve: $\frac{1}{x} + \frac{2}{3} = \frac{1}{3x}$.

CHAPTER 4

18. Simplify:

A. $\sqrt{100}$

B. $\sqrt{0}$

C. $\sqrt{8}$

D. $\sqrt{20}$

19. Multiply:

A. $\sqrt{30} \cdot \sqrt{18}$

B. $\sqrt{p} \cdot \sqrt{p}$

C. $\sqrt{21x} \cdot \sqrt{14x}$

20. Add or subtract:

A. $\sqrt{18} - \sqrt{8}$

B. $\sqrt{25x} + \sqrt{36x}$

21. Simplify:

A. $\sqrt{\frac{20}{5}}$

B. $\frac{\sqrt{5xy}}{\sqrt{xy}}$

C. $\frac{7}{\sqrt{7}}$

D. $\frac{\sqrt{15}}{\sqrt{3x}}$

2. Solve: $3\sqrt{6x+1}=15$

CHAPTER 5

23. Use the Square Root Method to solve:

A. $x^2 = 100$

B. $(2x-1)^2 = 9$

C. $(x+2)^2 - 10 = 0$

24. Use the Zero Product Method to solve:

A. $3x^2 - 21x = 0$

B. $6x^2 + x - 2 = 0$

C. $x^2 - 49 = 0$

25. Use the Quadratic Formula to solve:

A. $x^2 - 5x + 3 = 0$

B. $3x^2 - 1 = 0$

C. $x^2 + 7 = 0$

26. Use the most appropriate method to solve:

A. $x^2 = 50$

B. $x^2 + 11x + 18 = 0$

C. $x^2 + 3x + 1 = 0$

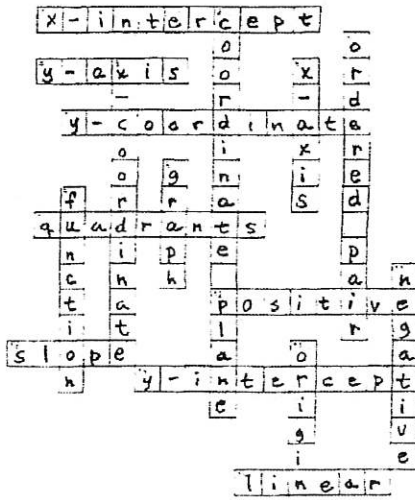
D. $4x^2 - 9 = 0$

E. $x^2 + x = -1$

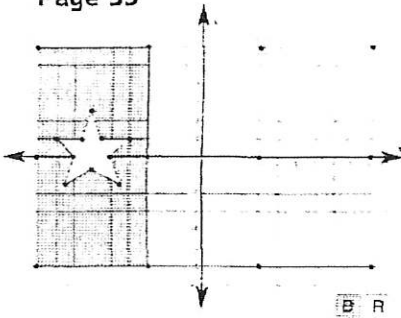
F. $2x^2 = 32$

Answers

Page 33



Page 35



Page 41

1. B
2. D
3. B
4. A
5. C
6. A
7. D
8. C
9. C
10. B

Page 42

1. A
2. C
3. D
4. C
5. B
6. D
7. B
8. C
9. A
10. B

Page 43

1. B
2. C
3. D
4. B
5. A
6. A
7. D
8. A
9. B
10. C
11. A
12. D

Page 44

1. C
2. B
3. D
4. B
5. C
6. A
7. D
8. A
9. C
10. B

Review, Chapter 2 - 4, page 30.

Chapter 2.

1. Terms: $-3x, 2y, -x, 19, -4$
 Coefficients: $-3, 2, -1, 19, -4$
 Like terms: $-3x, -x$, also: $19, -4$
2. $-4x + 2y + 15$
3. a. $-12y + 8x - 4$ c. $-x + 2$
 b. $42p - 7$ d. $-y + 4x - 1 + p$
4. a. $2x + 7$ d. $2a + 6$
 b. $-3p + 8$ e. $y - 3$
 c. -12 f. $2x + 4y$

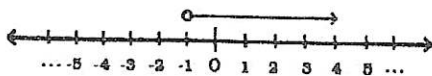
Chapter 3

1. a. Yes c. No
 b. Yes d. Yes

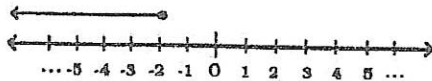
2. a. 11 e. 5 i. -6
 b. 4 f. -2 j. 0
 c. 5 g. $\frac{3}{4}$ k. 18
 d. 0 h. $\frac{7}{5}$ l. $-\frac{1}{6}$
3. a. -3 e. 9 i. 2
 b. -5 f. -3 j. 1
 c. $\frac{5}{2}$ g. 0 k. -1
 d. -2 h. 1 l. 5
4. a. $\frac{8}{3}$ c. 16
 b. $-\frac{3}{2}$

Chapter 4

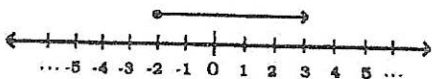
1. a. $<$ b. $<$ c. $<$
2. a. Yes b. Yes c. No
3. a. $y > -1$



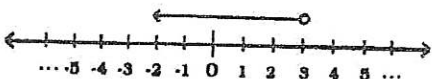
b. $p \leq -2$



c. $x \geq -2$



d. $x < 3$



Chapter 7

- | | | |
|-------------------|------------|------------------|
| 1. x, x | 7. xy | 13. x^2 |
| 2. $x, x + 5$ | 8. $x + 3$ | 14. 1 |
| 3. $x + 1, x + 2$ | 9. y | 15. $9(4 + 5)$ |
| 4. $y - 2, y - 3$ | 10. 1 | 16. $9(x + 2)$ |
| 5. 6 | 11. 5 | 17. $3(x - 8)$ |
| 6. x^2 | 12. $4y$ | 18. $-4(z - 10)$ |

- | | |
|-----------------------|------------------------|
| 19. $3(x^3 + 2x + 3)$ | 30. $(y + 10)(y - 10)$ |
| 20. $x(x^2 + 5x + 1)$ | 31. $7(x + 2)(x - 2)$ |
| 21. $7(x + y + z)$ | 32. Not factorable |
| 22. $(x + 2)(x + 3)$ | 33. $(2y + 5)(2y - 5)$ |
| 23. $(x + 2)(x + 3)$ | 34. -3, -4 |
| 24. $(x + 3)(x + 4)$ | 35. 2, -2 |
| 25. $(3y - 2)(y - 1)$ | 36. 0, 3 |
| 26. $2(x + 2)(x + 5)$ | 37. $-\frac{1}{2}, -7$ |
| 27. $(x + 2y)(x + y)$ | 38. 2, 1 |
| 28. Not factorable | 39. 0, $\frac{1}{14}$ |
| 29. $(x + 5)(x - 5)$ | |

Cumulative Review, page 76.

- | | | |
|-------------|------------------|---------------|
| 1. x | 3. $-x + 3x - 2$ | 5. $-2x - 5y$ |
| 2. $7x + 8$ | 4. $2y + 15$ | 6. $-2p + 5$ |
| 7. $x = 4$ | 10. 5 | 13. 8 |
| 8. 2 | 11. -10 | 14. 16 |
| 9. 5 | 12. 0 | |

- | | | |
|----------------|--------------------------|-----------------------|
| 15. $p \geq 4$ | 16. $x \leq \frac{3}{2}$ | |
| 17. 2^{13} | 19. 2^7 | 21. $\frac{7^3}{x^3}$ |
| 18. 2^{30} | 20. $\frac{1}{x^3}$ | |

- | | | |
|----------------------|------------------------|------------------------|
| 22. $6x + 3y + 10.$ | | |
| 23. $3y - 2x - 2$ | | |
| 24. $4x^2 + 4x + 2$ | | |
| 25. $8x^3$ | 28. $x^2 + 2x + 1$ | |
| 26. $-3x + 3y - 3$ | 29. $7x^2 + 5x - 2$ | |
| 27. $x^3 + 2x^2 + x$ | 30. $16y^2 + 34y + 4$ | |
| 31. $(x + 2)(x - 2)$ | 34. $(2y + 1)(y + 3)$ | |
| 32. $(x - 2)(x - 2)$ | 35. $4(x + 1)(x - 1)$ | |
| 33. $3(x + y + z)$ | 36. $2(3y - 1)(y - 1)$ | |
| 37. 0, -2 | 38. 3, -3 | 39. $-\frac{1}{2}, -3$ |

Review Chapters 5 - 7, page 73.

Chapter 5.

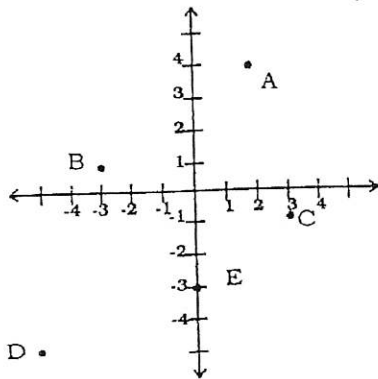
- | | | |
|--------------------|---------------------|------------------------|
| 1. x^{11} | 7. y^5 | 13. $\frac{1}{y^5}$ |
| 2. z^{18} | 8. z | 14. $\frac{1}{x^{10}}$ |
| 3. y^9 | 9. 2^{20} | 15. $\frac{1}{y^4}$ |
| 4. 1 | 10. 4 | 16. z^6 |
| 5. $\frac{1}{x^5}$ | 11. 1 | |
| 6. x^4y^4 | 12. $\frac{1}{x^9}$ | |

Chapter 6

- | | |
|--------------------------|-----------------------------|
| 1. Binomial, degree = 5 | 18. $x^3 + x$ |
| 2. Trinomial, degree = 1 | 19. $-3y^3 - 6y^2 - 3y$ |
| 3. Monomial, degree = 2 | 20. $2x^3y - 2xy^3$ |
| 4. Binomial, degree = 6 | 21. $x^2 + xy + 2x + y + 1$ |
| 5. $x^2 + 8x - 1$ | 22. $y^3 - 3y^2 + 5y - 3$ |
| 6. $-5x - 6$ | 23. $x^2 + 9x + 8$ |
| 7. $-3yx^2 + z$ | 24. $y^2 - 10y + 21$ |
| 8. 0 | 25. $2x^2 + 24x + 54$ |
| 9. $3x^2$ | 26. $6x^2 - 11xy + 4y^2$ |
| 10. $7xy - 7 + y$ | 27. $x^2 - 9$ |
| 11. $3y - 5$ | 28. $y^2 - 100$ |
| 12. $x^3 - 1$ | 29. $4x^2 - 9y^2$ |
| 13. $2xy$ | 30. $A^2 - B^2$ |
| 14. x^2 | 31. $x^2 + 8x + 16$ |
| 15. $6y^3$ | 32. $y^2 - 10y + 25$ |
| 16. $-12x^2y^5$ | 33. $4x^2 - 12xy + 9y^2$ |
| 17. $2x + 2y + 6$ | 34. $A^2 + 2AB + B^2$ |

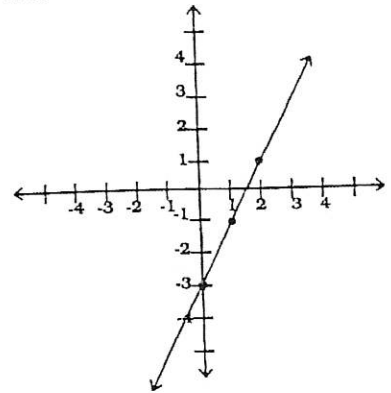
Chapter 1

1.

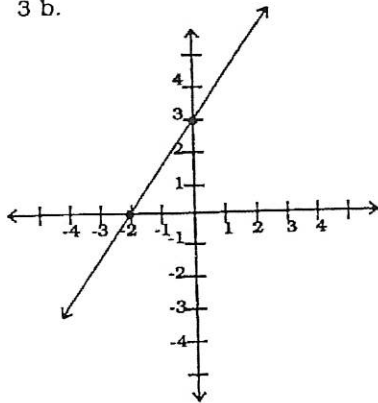


2a. No b. Yes c. Yes

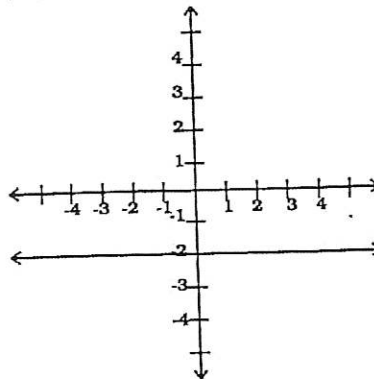
3 a.



3 b.



3 c.



4. $-\frac{3}{4}$

5a. Slope = 9, y-intercept = 1

5b. Slope = $-\frac{1}{2}$, y-intercept = -3

5c. Slope = -2, y-intercept = 3.

6. Same graph as in 3a. and 3b.

7. $y = -\frac{1}{2}x$. Hint: $b = 0$

Chapter 2

1a. No 1b. Yes 2a. Yes 2b. No 3a. (-2, -3) 3b. (-2, -3) 4. Dependent all methods.

Chapter 3

1a. $\frac{1}{y}$ 1b. $\frac{1}{x+3}$ 1c. $x - 5$ 1d. $\frac{x-3}{x}$ 2a. $\frac{5}{x+1}$ 2b. $\frac{x+2}{x+1}$

3a. $\frac{5}{x}$ 3b. $\frac{x}{x^2-4}$ 3c. $\frac{y-x}{xy}$ 4a. $y + x$ 4b. $\frac{7}{x-5}$ 5a. 21 5b. 1

Review, Chapters 4 and 5, page 86.

Chapter 4

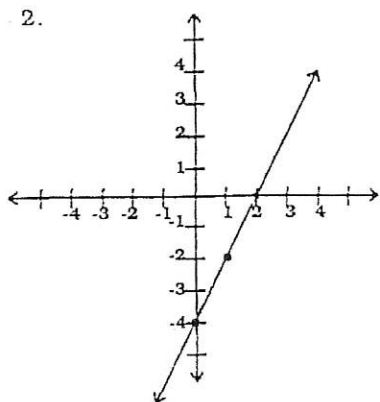
- 1a. 8 1b. -3 1c. $3\sqrt{3}$ 1d. $6\sqrt{2}$ 1e. x^3 1f. $2y^2\sqrt{3}$ 1g. $x^2\sqrt{x}$ 1h. $y^3\sqrt{3y}$
1i. $3x^5\sqrt{2y}$ 1j. 6 1k. x 1l. $10\sqrt{5}$ 1m. $14\sqrt{2}$ Hint: prime numbers.
2a. $2\sqrt{5}$ 2b. 7 2c. $3\sqrt{5x}$ 2d. x 2e. y^2 2f. $4xy\sqrt{3}$
3a. $12\sqrt{x}$ 3b. $4\sqrt{2}$ 3c. $-1\sqrt{3x}$ 4a. $\frac{2}{3}$ 4b. $\frac{3}{4}$ 4c. $\frac{x}{2}$ 4d. $\sqrt{2}$ 4e. $\frac{5\sqrt{2}}{2}$
4f. $\frac{\sqrt{14}}{2}$ 4g. $\frac{10\sqrt{x}}{x}$ 4h. $\sqrt{3}$ 4i. $\frac{\sqrt{2x}}{2}$ 4j. $5\sqrt{y}$ 5a. 25 5b. 36 5c. -2

Chapter 5

- 1a. $\pm 2\sqrt{2}$ 1b. ± 1 1c. 0 and 6. Hint: $x = 3 \pm 3$ 2a. 0, 8 2b. 2, -2 2c. 3, 4
2d. $-\frac{1}{3}, 2$ 2e. $\frac{-3 \pm \sqrt{5}}{2}$ 2f. No solution 2g. $\frac{-1 \pm \sqrt{5}}{2}$ 2h. 1 and $\frac{1}{2}$ 2i. $-\frac{5}{3}, -\frac{2}{7}$

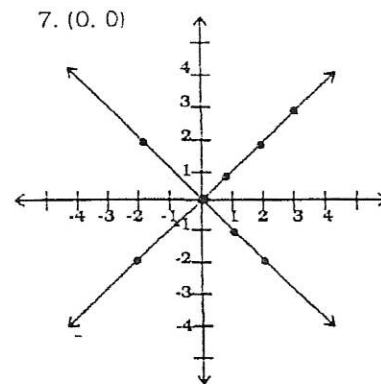
Cumulative Review, page 88.

- 1a. slope = -3 1b. slope = $\frac{4}{5}$ 1c. slope = -1
 y-intercept = 7 y-intercept = -6 y-intercept = 0
- 1d. $y = 5x + 1$ 1e. $y = 3x$ 1f. $y = 2x + 16$
 slope = 5 slope = 3 slope = 2
 y-intercept = 1 y-intercept = 0 y-intercept = 16



3. Same graph as Exercise 2.
 4. Same graph as Exercise 2.
 5. 1
 6. $y = -3x + 1$

8. (0, 0)
 9. (0, 0)
 10. (1, -3) each method.
 11. Inconsistent.
 12. Dependent.



- 13a. $\frac{1}{y}$ 13b. $\frac{x+2}{2}$ 13c. $\frac{1}{5}$ 13d. $x+9$ 13e. $\frac{1}{x}$ 13f. $\frac{1}{x+6}$
- 14a. x 14b. $\frac{1}{x+5}$ 14c. $x+2$ 14d. $\frac{3v}{y+1}$ 15a. $\frac{x+2}{2x}$ 15b. $\frac{1}{x}$
- 15c. $\frac{2x+1}{(x+1)(x+1)}$ 16. $x+2$ 17. -1
- 18a. 10 18b. 0 18c. $2\sqrt{2}$ 18d. $2\sqrt{5}$ 19a. $6\sqrt{15}$ 19b. p 19c. $7x\sqrt{6}$
- 20a. $\sqrt{2}$ 20b. $11\sqrt{x}$ 21a. 2 21b. $\sqrt{5}$ 21c. $\sqrt{7}$ 21d. $\frac{\sqrt{5x}}{x}$ 22. 4
- 23a. ± 10 23b. 2 or -1 23c. $-2 \pm \sqrt{10}$ 24a. 0, 7 24b. $-\frac{2}{3}, \frac{1}{2}$ 24c. 7, -7
- 25a. $\frac{5 \pm \sqrt{13}}{2}$ 25b. $\pm \frac{\sqrt{12}}{6} = \pm \frac{\sqrt{3}}{3}$ 25c. No solution
- 26a. $\pm 5\sqrt{2}$ 26b. -2, -9 26c. $\frac{-3 \pm \sqrt{5}}{2}$ 26d. $\frac{3}{2}, -\frac{3}{2}$ 26e. No solution 26f. ± 4