

Unit 1 Review Package

Analytic Geometry

Includes chapter 1 & 2 from the textbook

What you need to know:

Text book section	Topic	Completed
1.2	Substitution	
1.4	Elimination	
1.5	Solve Problems Using Linear Systems	
2.1	Midpoint of a Line Segment	
2.1	Median of a Triangle	
2.1	Right Bisector of a Line	
2.2	Length of a Line Segment	
2.3	Applying Slope, Midpoint, and Length Formulas	
2.4	Equation of a Circle	

1.2 Substitution

1. Solve the following linear systems using substitution (find the point of intersection)

a) $y = 2x - 3$
 $x + y = 6$

Point of Intersection: _____

b) $2x + y = 6$
 $3x + 2y = 10$

Point of Intersection: _____

c) $5 = 2y - x$
 $7 = 3y - 2x$

Point of Intersection: _____

d) $3x = y + 3$
 $2x + 3y = 13$

Point of Intersection: _____

e) $4x - y = -9$
 $3y - 2x = 17$

Point of Intersection: _____

f) $4x + y = 0$
 $x + 2y + 1 = 0$

Point of Intersection: _____

1.4 Elimination

2. Solve each linear system using elimination

a) $5x + 2y = -11$
 $3x + 2y = -9$

Point of Intersection: _____

b) $2x + y = -2$
 $-3x - y = 3$

Point of Intersection: _____

c) $x + y = 4$
 $2x - 3y = -2$

Point of Intersection: _____

d) $2x - 3y = 2$
 $5x + 6y = 5$

Point of Intersection: _____

e) $2x + 3y = -2$
 $8x + 5y = -6$

Point of Intersection: _____

f) $7x + 3y = -17$
 $6x + 2y = -14$

Point of Intersection: _____

g) $5x + 7y = 3$
 $2x + 3y = 1$

Point of Intersection: _____

1.5 Solve Problems Involving Linear Systems

3. Write a linear system for each question, and then solve it.

a) Three soccer balls and a basketball cost \$155. Two soccer balls and three basketballs cost \$220. Find the cost of each ball.

b) The students in the school band are selling chocolate-covered almonds for \$3 a box and chocolate bars for \$2 each to raise money for a band trip. Mary sold a total of 96 items and raised \$233. How many of each did she sell?

c) The cost of printing a magazine is based on a fixed set-up cost and the number of pages to be printed. One printing company charges a \$250 set-up fee and \$5/page, while a second company charges a \$400 set-up fee plus \$4/page. Write a linear equation for each company and then find the point of intersection. Interpret the meaning of the point of intersection.

2.1 Midpoint

4. Find the midpoint of each line segment

a) A (-2,-1) B(4,3)

e) G(20,35) H(2, -17)

b) C(-4,3) D(2,-5)

f) A(3,-5) B(-5,-6)

c) A(1,7) B(9, -3)

g) P(-2,5) Q(6,5)

d) J(-3,-2) K(5,6)

h) A(4,1) B(-9,10)

2.1 Median of a Triangle

5. Sketch each triangle and then find the equation of the median, in slope y-intercept form, from the vertex stated:

a) Determine the equation for the **median from vertex A** for the triangle with vertices $A(4,4)$, $B(-6,2)$, and $C(2,0)$

b) The vertices of $\triangle ABC$ are $A(-6, 6)$, $B(2, 10)$, and $C(4, -4)$. Find the equation of the **median from vertex B** in slope y-intercept form ($y=mx+b$)

c) The vertices of $\triangle PQR$ are $P(-3, 5)$, $Q(5, 7)$, and $R(3, -3)$. Find the equation of the **median from vertex Q** in slope y-intercept form ($y=mx+b$)

2.1 Right Bisector of a Line Segment

6. Find the equation of the right bisector for each of the following line segments:

a) Line Segment AB: A(-5,-2) B(3,6)

b) Line Segment CD: C(1,4) D(3,-2)

c) Line Segment PQ: P(8,8) Q(4,-2)

2.2 Length of a Line Segment

7. Find the length of each of the following line segments (round to the nearest tenth)

a) $C(-7, -5)$ $D(-4, 6)$

d) $B(5, 3)$ $C(1, -5)$

b) $R(-4, 6)$ $T(10, -8)$

e) $S(4, -5)$ $T(10, 7)$

c) $A(-3, 5)$ $B(5, 3)$

f) $B(-6, 8)$ $C(4, -5)$

2.3 Application of Formulas

8. Classify each of the following triangles by finding the length of each side

a) $D(-5, 2)$, $E(2, 5)$, $F(2, -1)$

b) $A(-4, 2)$, $B(-2, -6)$, $C(6, -2)$.

9. Determine if triangle $X(1,4)$ $Y(-3,-2)$ $Z(3,-6)$ is a right triangle

2.4 Equation of a Circle

10. State the radius of each of the following circles

a) $x^2 + y^2 = 49$

c) $x^2 + y^2 = 64$

b) $x^2 + y^2 = 16$

d) $x^2 + y^2 = 1.44$

11. Find an equation for the circle that is centered at the origin and has:

a) radius of 4

b) a radius of $\sqrt{8}$

c) a diameter of 18

12. Find an equation for the circle centred at the origin that passes through each point.

a) $(3, -4)$

c) $(3, 7)$

b) $(-5, 2)$

d) $(-6, -2)$

13. Determine whether each point is on, inside, or outside the circle defined by $x^2 + y^2 = 26$.

a) (1, 3)

b) (-4, 6)

c) (1, 5)

Answers:

1. **a)** (3,3) **b)** (2,2) **c)** (1,3) **d)** (2,3) **e)** (-1,5) **f)** (1/7,-4/7)

2. **a)** (-1,-3) **b)** (-1,0) **c)** (2,2) **d)** (1,0) **e)** (-4/7,-2/7) **f)** (-2,-1) **g)** (2,-1)

3. **a)** soccer=35, bball=50 **b)** 41 almonds, 55 choc. Bars **c)** same cost of 1000 when printing 150 pgs

4. **a)** (1,1) **b)** (-1,-1) **c)** (5,2) **d)** (1,2) **e)** (11,9) **f)** (-1,-11/2) **g)** (2,5) **h)** (-5/2,11/2)

5. **a)** $y=1/2x+2$ **b)** $3x+4$ **c)** $6/5x+1$

6. **a)** $y=-x+1$ **b)** $1/3x+1/3$ **c)** $y=-2/5x+27/5$

7. **a)** 11.4 **b)** 19.8 **c)** 8.2 **d)** 8.9 **e)** 13.4 **f)** 16.4

8. **a)** isosceles **b)** scalene

9. yes it is a right triangle

10. **a)** 7 **b)** 4 **c)** 8 **d)** 1.2

11. **a)** $x^2+y^2=16$ **b)** $x^2+y^2=8$ **c)** $x^2+y^2=81$

12. **a)** $x^2+y^2=25$ **b)** $x^2+y^2=29$ **c)** $x^2+y^2=58$ **d)** $x^2+y^2=40$

13. **a)** inside **b)** outside **c)** on