

Unit 1 – Linear Systems

1) Solve the following linear systems using substitution

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

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

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

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

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

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

2) Solve each linear system using elimination

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

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

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

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

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

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

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

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.

Unit 2 – Analytic Geometry

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)

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 ($y=mx+b$)

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)

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

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

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) $(-6, -2)$

