Name: _____ Date: _____

BLM 8–5

Section 8.1 Extra Practice

1. Solve each system of linear equations graphically.

a) $y = 3x + 1$

$y = –0.5x + 8$

b) $y = –2x + 5$

$y = x + 2$

c) $3x – y = –10$

$2x + y = –5$

d) $2x + 3y – 6 = 0$

$2x + 7y = 10$

e) $x – 5y = 4$

$3x – 8y – 5 = 0$

2. Solve each system of linear equations graphically. Then, verify your solution.

a) $y = \frac{1}{2}x + 7$

$y = –2x – 3$

b) $2x + y = 3$

$x + 2y = –6$

3. Is the given point a solution to the system of linear equations?

a) $y = 5x + 13$

$y = –7x – 35$

$(4, 7)$

b) $4x – 5y = 20$

$x + 3y = –29$

$(–5, –8)$

c) $3x + y = 11$

$x – 2y = 6$

$(4, –1)$

d) $4x + y = 6$

$x – y = 1$

$(1, 0)$

4. Mae graphed the system of linear equations $y = 3x + 4$ and $y = –2x + b$. She knows that the solution is (2, 10). What is the value of b?

5. **a)** Graph the following three lines on grid paper.

$3x + 4y = 17$

$x – 2y = –1$

$x + 1 = 0$

b) A triangle is formed by these three lines. Determine the coordinates of the vertices of the triangle.

6. Sam and Malik go skydiving together. Terminal velocity occurs during free fall when the air resistance causes the body to fall at a constant speed. Sam reaches a terminal velocity of 50 m/s at an altitude of 3000 m. Malik reaches a terminal velocity of 40 m/s at 2600 m. They reach terminal velocity at the same time. The distance, d, in metres, above the ground at time t, in seconds, after reaching terminal velocity for each person is modelled by the following equations:

Sam: $d = –50t + 3000$

Malik: $d = –40t + 2600$

a) Graph the system of linear equations.

b) Determine the point of intersection of the two lines graphically.

c) What does the point of intersection represent?

7. With a tailwind, a particular airplane travels at 420 km/h. When flying against the wind, the airplane can travel at only 310 km/h. Let the airplane's speed in still air be v kilometres per hour. Let the wind speed be w kilometres per hour. The system of linear equations $v + w = 420$ and $v – w = 310$ represents this information. Solve the linear system graphically to determine the wind speed and the speed of the plane in still air.