First name: _____ Last name: _____   Student ID: _____

Chapter 5 Analytic Geometry (3) Homework

1. Determine if the following lines are parallel, perpendicular, or neither.
1) Line AB: (-8, 4) and (2, -1)   2) $m_1 = 2.5$
   Line CD: (-9, 0) and (-3, -3) $m_2 = -2.5$

3) $y = 5x – 2$ 4) $3x – y = 7$
   $y = -0.2x + 3$ $6x – 2y = 14$

2. Is it possible for two lines with negative slopes to be perpendicular? Why or why not?

3. Determine an equation of the line through (-3, 2) and
1) parallel to the x-axis   2) parallel to the y-axis

3) perpendicular to $y = -3x + 4$ 4) parallel to line $y = 2x + 3$

4. Find the equation of the line perpendicular to $y = -\dfrac{2}{3}x + 4$ and passes through P(5, -2).

5. Find the equation of the straight line parallel to $2x - 5y + 3 = 0$ and having x-intercept 4.

6. Determine the equation for the family of lines
1) having slopes 4   2) passing through the point (4, -3)

3) parallel to the x-axis

7. The graphs of the equations $x + 3y = 6$ and $kx + 2y = 8$ are perpendicular. What is the value of k?

8. Pizzazz Pizza charges a flat amount for a 40 cm pizza with tomato sauce, with an added cost for each topping. A 40-cm pizza with one topping costs \$9.25, while a 40 cm pizza with four toppings costs \$10.75
    a. Find the cost of each additional topping.

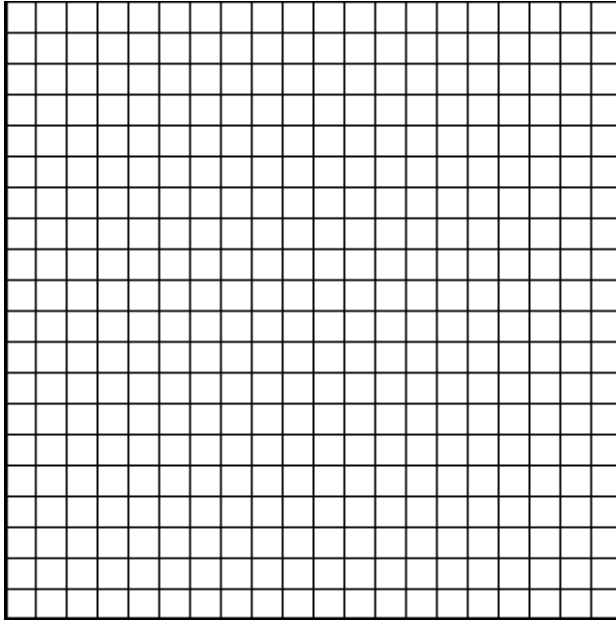   b. Find the cost of a pizza with no additional toppings.

    c. Write an equation for the cost of the pizza in the form $y = mx + b$

    d. Find the cost of a pizza with five toppings.

9. Faster Fitness has a yearly membership fee of \$90, but it costs members only \$5 to take an instruction class. At Drop-In Fitness, there is no membership fee, but clients pay \$35 per instruction class.
    a. Write an equation for each situation and label whether they are direct or partial variation.

b. Graph both equations on the same set of axes. Find the point of intersection

c. What does the point of intersection mean in this case?

d. What would you advise someone who is trying to choose between the two fitness clubs?

10. The temperature of a cup of coffee decreases according to y = -2x + 96, where y is the temperature in degrees Celsius x minutes after the coffee is poured.

 a) Find the slope and y-intercept of the line and interpret its meaning.

b) Determine the temperature after 10 minutes.

c) Determine when the coffee is 28°C.