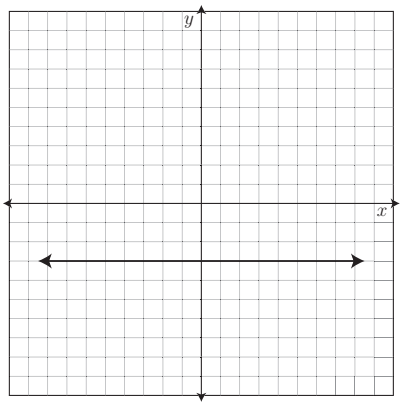
Review Problems Name: **Solutions**

Show all relevant work!

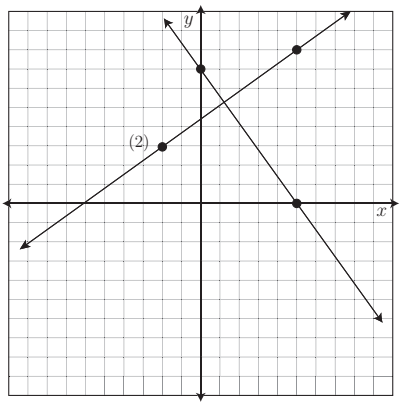
1. Write the equations of the lines graphed below.

(a)



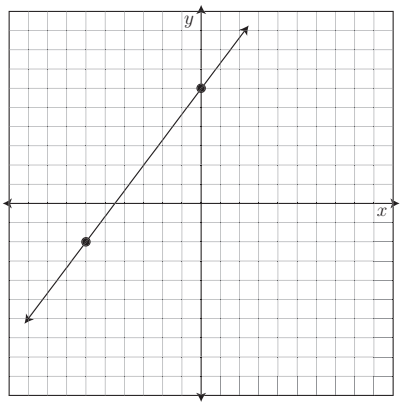
Ans: $y = -3$

(b)



Ans: $y = -\frac{7}{5}x + 7$

(c)



Ans: $y = \frac{4}{3}x + 6$

2. Graph the line perpendicular to 1(b) above that contains the point $(-2, 3)$.

Ans: (See Graph)

3. The table for a linear equation is started below.

(a) Fill in the rest of the table.

x	0	3	6	9	12
y	19	14	9	4	-1

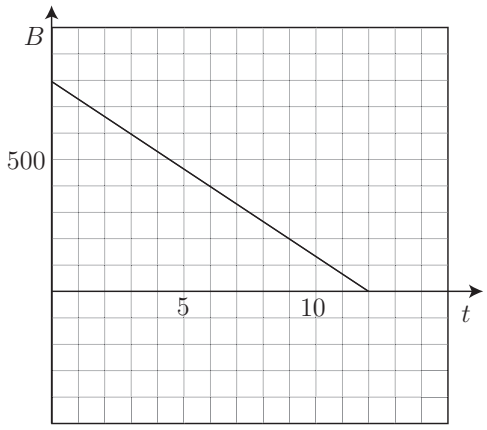
(b) Write the equation of the line for this table.

Ans: $y = \dfrac{-5}{3}x + 19$

4. Complete this table for the line through $(-2, 5)$ that is perpendicular to the line in 3.

x	-12	-7	-2	3	8
y	-1	2	5	8	11

5. The balance of Clarence's bank account is graphed below. If B measures his balance in dollars and t is time in months, answer the following questions.



(a) How fast is Clarence spending money?

Ans: $\dfrac{\$200}{3 \text{ months}}$ so \$200 every three months (or $\sim$ \$67 per month)

(b) Write an equation for the balance of Clarence's account over time.

Ans: $B = \dfrac{-200}{3}t + 800$

(c) What is the B intercept and what does it tell you?

Ans: (0, 800). Clarence started with \$800 in his account.

(d) What is the t intercept and what does it tell you?

Ans: (12, 0). After 12 months Clarence is out of money.

(e) What happens after the t intercept (give a contextual interpretation).

Ans: Clarence would be overdrawing his account if the model kept on going.

6. Juan owns a propane-gas barbecue grill with a tank that holds 5 gallons of propane. He always sets the temperature at 350°F, which uses 0.125 gallons of propane per hour. Let g be the number of gallons of propane that remain in the tank after t hours of cooking since the tank was filled. Write an equation for g in terms of t.

Ans: $g = -0.125t + 5$

7. My garbage company charges \$12 to pick up one can of garbage and \$28 to pick up 3 cans.

(a) What is the company's per can charge?

Ans: $\dfrac{\$28 - \$12}{3 - 1 \text{ cans}} = \$8$ per can.

(b) Write a linear formula for the cost, C, of having n cans of garbage picked up.

Ans: $C = 8n + 4$ Notice that the charge for one can is \$12 while the per can cost is \$8 so there must be a pick-up charge of \$4.

(c) What is the C intercept and what does it mean in this context?

Ans: The C intercept is (0, 4). See above - it's the pick-up charge for coming to collect the garbage (whether I put out cans or not).