

1. Find an equation of the line passing through the points $(3, -2)$ and $(-1, -4)$.
2. Find the exact coordinates of the x -intercept of the line passing through the points $(-4, -3)$ and $(0, 3)$.
3. Your daily profit $P(n)$ (in dollars) if you sell n lattes is given by the function $P(n) = \frac{3}{4}n - 30$. On Monday you lose \$12. You sell twice as many lattes on Tuesday as you did on Monday. How much money did you make on Tuesday?
4. Suppose that your property tax is computed using a linear function that depends only on the square footage of your lot. Your tax for a 5000 square foot lot is \$4000. Your neighbor's tax for a 4000 square foot lot is \$3500.
 - a. Express the tax T in terms of the square footage F of the lot.
 - b. Suppose your wealthy neighbor has an 8200 square foot lot. What is his property tax?
 - c. Your friend has a 2700 square foot lot. His receives a property tax bill of \$2000. Is the bill correct? If not, what is the correct amount?
 - d. If you move from a home with a 3500 square foot lot to a home with a 4700 square foot lot, by how much does your property tax increase? There is a very fast way to do this problem. Can you find it?
5. The height, H , in feet, of a balloon t hours after 1:00 pm is given by

$$H = 400 + 1500t$$

How many feet does the balloon rise between 1:53pm and 2:03 pm?

6. Let $f(x) = 3 + |x + 4|$.
 - a. Compute $f(5)$.
 - b. Solve the equation $f(x) = 10$.
 - c. Solve the equation $f(x) = f(10)$.
 - d. Solve the inequality $f(x) > 10$.
 - e. Solve the inequality $f(x) < 10$.
7. The distance (in kilometers) between two cars h hours after 3:00 PM is given by the function

$$D(h) = |140 - 150h| \quad , \quad 0 \leq h \leq 3$$

- a. Find the distance between the cars at 3:50PM.
- b. When are the cars 20 km apart?
- c. When is the distance between the cars less than 100 km?
- d. When is the distance between the cars greater than 40 km?
- e. Find all times when the cars are getting closer together.
- f. When is the distance between the cars the same as it is at 4:00pm?