

Lesson 3.5
Algebra 2

Writing Linear Functions

1. A gym membership costs \$45 to join (a one-time fee) and \$12 per month.
 - a. Write an equation that represents the total cost of your gym membership.
 - b. How much would it cost for 18 months of this membership?
 - c. Your grandparents gave you \$200 to pay for your gym membership. How many months does this pay for?



2. You buy a used car for \$7200. It's so old that it loses \$75 of its value each month.
 - a. Write an equation that represents the value of the car each month.
 - b. How much would your car be worth after 1 year?
 - c. After how many months will your car be worth less than \$4000?



3. Everyone tells you that you make AMAZING chocolate shakes, so you decide to open a chocolate shake stand. You spend \$32 on the table, chair, and poster board for making your stand. You determine that it costs you \$1.25 per shake for the ingredients, the cup, and the straw.
 - a. Write an equation that represents your expenses for selling the shakes in terms of dollars spent.
 - b. How much would it cost you to sell 10 shakes?
 - c. Your kind neighbor gave you \$50 to start up your business. How many shakes can you afford to make with this amount?
 - d. What is the slope of your line? What does it represent in the "real world"?
 - e. What is the y-intercept of your line? What does it represent in the "real world"?



4. The Great Pyramid in Giza is located in Egypt. If you stand with your toes against the bottom edge of the pyramid, the face of the pyramid that is 5 meters in front of you will have a height of 6.8 meters. The spot on the pyramid that is 25 meters in front of you had a height of 32 meters.
 - a. Write an equation that represents the height of the pyramid in terms of the distance in front of your toes.
 - b. How high would the pyramid be at a point 80 meters in front of you?
 - c. The peak of the pyramid is located 115.2 meters directly in front of you. What is the maximum height of the pyramid?



5. An Olympic ski jumper is practicing the run down the slope. At 1 second after leaving the starting gate, she is 47.34 meters above level ground. Two seconds after leaving the gate, she is 33.56 meters above the ground.
- Write an equation that represents the skier's elevation in terms of seconds since she's left the gate.
 - What is the skier's elevation at the starting gate?
 - At what time will the skier be 12 meters above level ground?

