

MATH 156: Precalculus
Fall 2015
Worksheet §1.7: Modeling with Equations

For each problem below you want to make sure you can *set up the expression or equations before you leave class today*.

1. Express the average of three test scores in terms of s , the third test score, assuming the first two test scores are 88 and 95.

2. Express the time (in hours) it takes to travel a given distance at 65 miles per hour in terms of d , the distance traveled in miles.

3. A rental company charges \$100 dollars a day and 50 cents a mile for renting an RV. Michael rented an RV for 3 days and the bill came to \$588. How many miles did he drive?

4. A pasture is three times as long as it is wide. If its area is 200,000 square feet, how wide is the pasture?

5. A poster has a rectangular printed area 100 cm by 120 cm and a blank strip of uniform width around the edges. The perimeter of the poster is $1\frac{1}{2}$ the perimeter of the printed area. What is the width of the blank strip?

6. A 12-foot ladder leans against a building. The base of the ladder is 4 feet from the building. How high up the building does the ladder reach?

7. A health clinic uses a solution of bleach to sterilize petri dishes in which cultures are grown. The sterilization tank contains 100 gal of a solution of 2% ordinary household bleach mixed with pure distilled water. New research indicates that the concentration of bleach should be 5% for complete sterilization. How much of the solution should be drained and replaced with bleach to increase the bleach content to the recommended level?

8. A merchant blends tea that sells for \$3.00 an ounce with tea that sells for \$2.75 an ounce to produce 60 ounces of a mixture that sells for \$2.90 an ounce. How many ounces of each type of tea does the merchant use in the blend?

9. Wendy took a trip from Davenport to Omaha, a distance of 300 miles. She traveled part of the way by bus, which arrived at the train station just in time for Wendy to complete her journey by train. The bus averaged 40 mi/hr and the train averaged 60 mi/h. The entire trip took $5\frac{1}{2}$ hours. How long did Wendy spend on the train?