

Date: \_\_\_\_\_

#### 4.5 Modelling with Algebra

Sometimes we have to create our own equations to model real life situations. You have already done this a few times in this unit (total earnings at a job, money raised for a school, area, perimeter, etc.).



#### To Model with Algebra:

- **Clearly define your variables!!** Remember that your algebraic expression must be equal to something so that you can solve, so you will usually need two variables.
- Create an expression that translates the description in the question into a mathematical statement. Read this expression to yourself, replacing the variables with their meaning. It should make sense!
- Expand and simplify your expression (when necessary).
- Solve the equation. Remember that you can check your answer if you are unsure of your math.
- Write a therefore statement. Take a second to think about your answer and see if it makes sense!

Example: Mrs. Ryan, Mrs. Katt, and Mr. Scarrow operate a convenience store in addition to their teaching jobs. Mrs. Katt makes twice as much as Mrs. Ryan, who only works part time. Mr. Scarrow makes \$200 per week more than Mrs. Katt. The total weekly payroll is \$1450.

a) Write an algebraic model for their weekly earnings. Be sure to define the unknown values!

b) Use your model to determine each person's weekly earnings. (use the space above)

## Working with Unknown Integers



### 1) Consecutive Integers

What does it mean to have 'consecutive' integers?

Example: The sum of three consecutive integers is 67. Use an algebraic model to find the integers.

### 2) Consecutive Even/Odd Integers

Write down three consecutive even integers. How can we express 'even integers' algebraically?

Write down three consecutive odd integers. How can we express 'odd integers' algebraically?

Example: The sum of three consecutive even integers is -24. Find the integers.

### **HOLIDAY MATH RIDDLE!**

Buddy and Hermey were both born on Christmas Eve. When Buddy was 6 years old, Hermey was half his age. If Buddy turns 100 years old this Christmas Eve, how old is Hermey going to be?

