***Lesson 2.2: Creating and Solving Equations***

***Creating Equations from Verbal Descriptions***

***Examples:***

1). Suppose Cory and his friend, Walter, go to a home. Each of their tickets costs the same amount, and they share a frozen yogurt that costs $5.50. The total amount they spend is $19.90. How can you write an equation that describes the situation?

***Creating and Solving Equations Involving the Distributive Property.***

***Examples:***

2). Aaron and Alice are bowling. Alice’s score is twice the difference of Aaron’s score and 5. The sum of their scores is 320. Find each student’s bowling score.

3). Mari, Carlos, and Amanda collect stamps. Carlos has five more stamps than Mari, and Amanda has three times as many stamps as Carlos. Altogether, they have 100 Stamps. Find the number of stamps each person has.

4). A rectangular garden is fenced on all sides with 256 feet of fencing. The garden is 8 feet longer than it is wide. Find the length and width of the garden.

***Creating and Solving Equations with Variables on Both Sides.***

1). Janine has job offers at two companies. One company offers a starting salary of $28,000 with a raise of $3000 each year. The other company offers a starting salary of $36,000 with a raise of $2000 each year. In how many years would Jeanine’s salary be the same with both companies? What will the salary be?

2). One moving company charges $800 plus $16 per hour. Another moving company charges $720 plus $21 per hour. At what number of hours will the change by both companies be the same? What is the change?

3). Claire bought just enough fencing to enclose either a rectangular garden or a triangular garden, as shown. The two gardens have the same perimeter. How many feet of the fencing did she buy?

 (2x – 1) (2x – 1)

 2x

 (x-3)

 (3x-3)

4). A veterinarian is changing the diets of two animals, Simba and Cuddles. Simba currently consumes 1200 calories per day. That number will increase by 100 calories each day. Cuddles currently consumes 3230 calories per day. That number will decrease by 190 calories each day. The patterns will continue until both animas are consuming the same number of calories. In how many days will that be? How many calories will each animal be consuming each day then?

***Constructing Equations from an Organized Table***

***Examples:***

1). Kim works 4 hours more each day than Jill does, and Jack works 2 hours less each day than Jill does. Over 2 days, the number of hours Kim works is equal to the difference of 4 times the number of hours Jack works and the number of hours Jill works. How many hours does each person work each day?

|  |  |  |
| --- | --- | --- |
|  | Hours worked per day | Hours worked over 2 days |
| Kim |  |  |
| Jill  |  |  |
| Jack |  |  |

2). Lisa is 10 centimeters taller than her friend Ian. Ian is 14 centimeters taller than Jim. Every month their heights increase by 2 centimeters. In 7 months, the sum of Ian’s and Jim’s height will be 170 centimeters more than Lisa’s height. How tall is Ian now?

|  |  |  |
| --- | --- | --- |
|  | Height Now | Height After 7 months |
| Lisa  |  |  |
| Ian |  |  |
| Jim |  |  |