**Lesson 7.1: Modeling Linear Equations**

**Example 1:**

**The band booster club is selling T-shirts and blanket wraps to raise money for a trip. The band director has asked the club to raise at least $1000.**

**The booster club president wants to know how many t-shirts and how many blanket wraps the club needs to sell to meet their goal of $1000. The T-shirts cost $10 each and the blanket wraps cost $25 each. Write a linear equation that describes the problem, and then graph the linear equation. How can the booster club president use the sales price of each item to meet the goal?**

Step 1: Define each term in the problem. Step 2: Create an Equation

T-Shirts:

Blanket Wraps:

Total:

Step 3: Find your graph values by finding Step 4: Graph your coordinates.

Your x and y intercepts. Once you find them,

Choose a value that falls in between both

x-values.

|  |  |
| --- | --- |
| T | B |
|  0 |  |
|  |  |
|  |  0 |

**Example 2:**

**A sandwich shop sells sandwiches for $5 each and bottle of water for $1 each. The owner of this shop needs to earn a total of $100 by the end of the day. Write a linear equation that describes the problem; then graph the linear equation. Make sure to label both axes with appropriate titles.**

Step 1: Define each term in the problem. Step 2: Create an Equation

sandwiches:

bottle of water:

Total:

Step 3: Find your graph values by finding Step 4: Graph your coordinates.

Your x and y intercepts. Once you find them,

Choose a value that falls in between both

x-values.

|  |  |
| --- | --- |
| S | W |
|  0 |  |
|  |  |
|  |  0 |

**Homework: Workbook Pages 304-305 (1-12)**

**Lesson 7.2: Using Functions to Solve One-Variable Equations**

**Example 1:**

Susan wants to hire a babysitter for this weekend for her 3 children. She has two choices. Babysitter A charges $10 per child and $5 per hour. Babysitter B charges $15 per child and $2 an hour. When will they charge the same amount of money?

Step 1: Define each babysitter with an equation.

Step 2: Set both equations equal to each other.

Step 3: What will the value be at the given x-value.

**Example 2:**

**John needs to hire a painter. Painter A is offering his services for an initial $175 in addition to $14.25 per hour. Painter B is offering his services for an initial $200 in addition to $11 per hour. For what number of hours will the two painters charge the same amount of money?**

Step 1: Define each babysitter with an equation.Step 2: Set both equations equal to each other.

Step 3: What will the value be at the given x-value.

**Example 3:**

**Georgia is in need of an electrician. Electrician A is offering his services for an initial fee of $25 in addition to $45 per hour. Electrician B is offering her services for an initial fee of $150 in addition to $38 per hour. For what number of hours will the two electricians charge the same amount of money?**

Step 1: Define each babysitter with an equation.

Step 2: Set both equations equal to each other.

Step 3: What will the value be at the given x-value.

**Homework Workbook Pages 314-215 (1-5)**

**Lesson 7.3: Linear Inequalities in Two Variables.**

**Example 1:**

**Some students at a music recital perform 3-minute pieces and some perform 5-minute pieces. The total time of this part of the recital needs to be at least 30 minutes long. An inequality that represents this is 3x + 5y** $\geq $ **30.**

Step 1: Solve the inequality to put it in the form y = mx + b

Step 2: replace the inequality sign with an equal sign.

Step 3: Graph the equation. First find the y-intercept and x-intercept.

Step 4: Highlight the given inequality area.

**Example 2:**

**Elijah can spend at most $8.25 on snacks for a party. Carrots cost $2 per package and grapes cost $.75 per bag. Write a linear inequality to describe the situation and graph it.**

Step 1: create and solve the inequality to put it in the form y = mx + b

Step 2: replace the inequality sign with an equal sign.

Step 3: Graph the equation. First find the y-intercept and x-intercept.

Step 4: Highlight the given inequality area.

**Example 3:**

**-14 + 2y** $<$ **-x**

Step 1: Solve the inequality to put it in the form y = mx + b

Step 2: replace the inequality sign with an equal sign.

Step 3: Graph the equation. First find the y-intercept and x-intercept.

Step 4: Highlight the given inequality area.

**Homework: Workbook Pages 329-330 (1-12)**