Finding Linear Functions

Bell Work:

For #1 – 3, use $a_{14} = 82.3$ and $a_{37} = 270.90$.

1. **What is the common difference? Show all work.**

2. **What is the first term? Show all work.**

3. **What is the arithmetic sequence function?**

4. **What is the slope formula?**

Finding Linear Functions

Today, you are going to write linear functions.

$$y + 5 = -\frac{5}{3}(x - 8)$$

$$y = \frac{4}{7}x + 3$$

$$y - 7 = 3\,(x + 2)$$

$$y = -\frac{2}{3}x - \frac{8}{3}$$

$$y = \frac{1}{4}x + \frac{15}{2}$$

Finding Linear Functions

1. **What is the point-slope form of the linear function that goes through (-8, 3) and has a slope of $-\frac{5}{2}$?**

$$y - y_1 = m(x - x_1)$$

Use the point-slope formula and substitute the numbers into it.

$$y - 3 = -\frac{5}{2}(x - -8)$$

$$y - 3 = -\frac{5}{2}(x + 8)$$

Finding Linear Functions

2. **What is the point-slope form of the linear function that goes through (7, -4) and has a slope of $\frac{4}{5}$?**

$$y - y_1 = m(x - x_1)$$

Use the point-slope formula and substitute the numbers into it.

$$y - -4 = \frac{4}{5}(x - 7)$$

$$y + 4 = \frac{4}{5}(x - 7)$$

Finding Linear Functions

3. **What is the slope-intercept form of the linear function that goes through (8, -7) and has a slope of $-\frac{1}{2}$?**

$$y - y_1 = m(x - x_1)$$

Use the point-slope formula and substitute the numbers into it.

$$y - -7 = -\frac{1}{2}(x - 8)$$

Use the distributive property.

$$y + 7 = -\frac{1}{2}x + 4$$

Solve for y.

$$y = -\frac{1}{2}x - 3$$

Finding Linear Functions

4. **What is the slope-intercept form of the linear function that goes through (-12, -5) and has a slope of $-\frac{5}{4}$?**

$$y - y_1 = m(x - x_1)$$

Use the point-slope formula and substitute the numbers into it.

$$y - -5 = -\frac{5}{4}(x - -12)$$

Use the distributive property.

$$y + 5 = -\frac{5}{4}x - 15$$

Solve for y.

$$y = -\frac{5}{4}x - 20$$

Finding Linear Functions

5. What is the slope-intercept form of the linear function that goes through (7, 2) and has a slope of $\frac{2}{3}$?

$$y - y_1 = m(x - x_1)$$

Use the point-slope formula and substitute the numbers into it.

$$y - 2 = \frac{2}{3}(x - 7)$$

Use the distributive property.

$$y - 2 = \frac{2}{3}x - \frac{14}{3}$$

No repeating decimals.

Solve for y.

$$y = \frac{2}{3}x - \frac{8}{3}$$

Finding Linear Functions

6. **What is the slope-intercept form of the linear function that goes through (-14, 9) and has a slope of $-\frac{3}{5}$?**

$$y - y_1 = m(x - x_1)$$

Use the point-slope formula and substitute the numbers into it.

$$y - 9 = -\frac{3}{5}(x - -14)$$

$$y - 9 = -\frac{3}{5}x - \frac{42}{5}$$

Use the distributive property.

No repeating decimals.

$$y = -\frac{3}{5}x - \frac{3}{5}$$

Solve for y.

Finding Linear Functions

Writing Point-Slope form functions:

Use the point-slope formula.

Writing Slope-Intercept form functions:

1. **Use the point-slope formula.**
2. **Use the distributive property.**
3. **Solve for *y*.**

Finding Linear Functions

Assignment:

Finding Linear Functions from a Point and Slope Worksheet