Name: _____ Date: _____

BLM 9–4

# Chapter 9 Problems of the Week

**1.** Study the pattern to determine the linear equation used to create the values of $y$ in the table. Plot these points on a coordinate grid. Is it easier to find the relationship between the variables from the table or from your graph? Explain.

| $x$ | 0 | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| $y$ | 1 | 4 | 7 | 10 | 13 | 16 |

**2.** Follow the steps below to make up a question like #1 for a classmate:

- Make up a linear equation. You may want to look in your student resource for some ideas.
- Create a table of values.
- Make a graph from the table of values.
- Give the table and the graph to your classmate.

Can your classmate determine the equation that you used?

**3.** Jesse does not know how to graph the equation $y = x - 6$. Provide a set of instructions that Jesse can use so that he will be able to graph this linear equation or any other equation in the future.

**4.** Point (3, 5) is one of the coordinates created by the linear equation $y = 4x + b$. What is the value of $b$?

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(continued)

**5.** Copy and complete the two tables of values before you answer the questions below.

| $x$ | $y = x - 4$ |
|---|---|
| −2 | |
| −1 | |
| 0 | |
| 1 | |
| 2 | |
| 3 | |
| 4 | |
| 5 | |

| $x$ | $y = 3x - 6$ |
|---|---|
| −2 | |
| −1 | |
| 0 | |
| 1 | |
| 2 | |
| 3 | |
| 4 | |

**a)** For these two equations, as the value of $x$ decreases beyond −2, will the value of $y$ always decrease? Why or why not?

**b)** For these two equations, as the value of $x$ increases beyond 5, will the value of $y$ always increase? Why or why not?

**c)** What value for $x$ results in equal values for $y$ in both equations?

**d)** Plot the two equations on a grid. What do you notice about the points for these equations? Explain.

**6.** Find at least ten equivalent fractions for each of these fractions: $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, and $\frac{1}{5}$.

**a)** Graph the equivalent fractions, where the numerators are along the $x$-axis and the denominators are along the $y$-axis. Use a different colour for each set of equivalent fractions.

**b)** Which fractions have common points?

**c)** Can you write an algebraic equation for each fraction?

**d)** How could this graph help you find an equivalent fraction in lowest terms?