## Unit 6 Lesson 12: Changing the Equation

### 1 Math Talk: A Negative Input (Warm up)

#### Student Task Statement

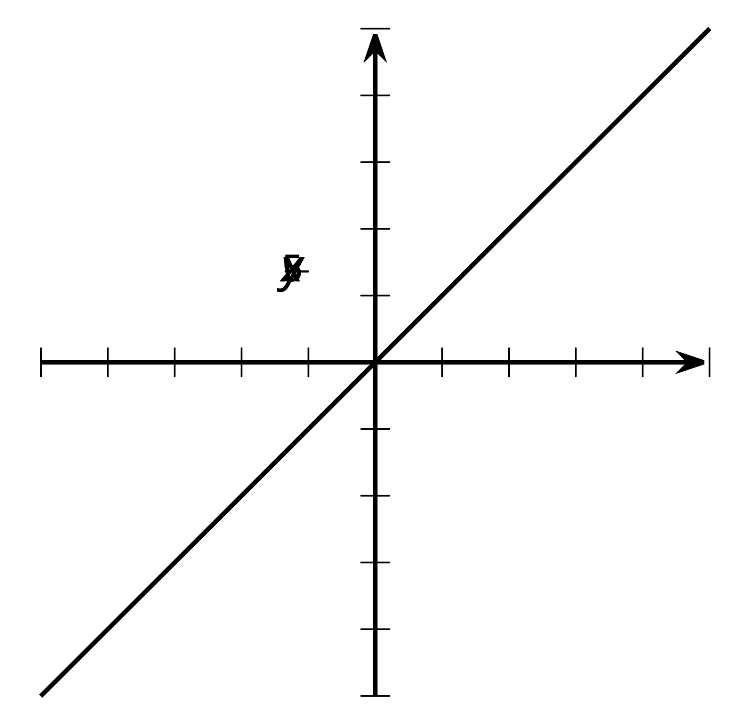
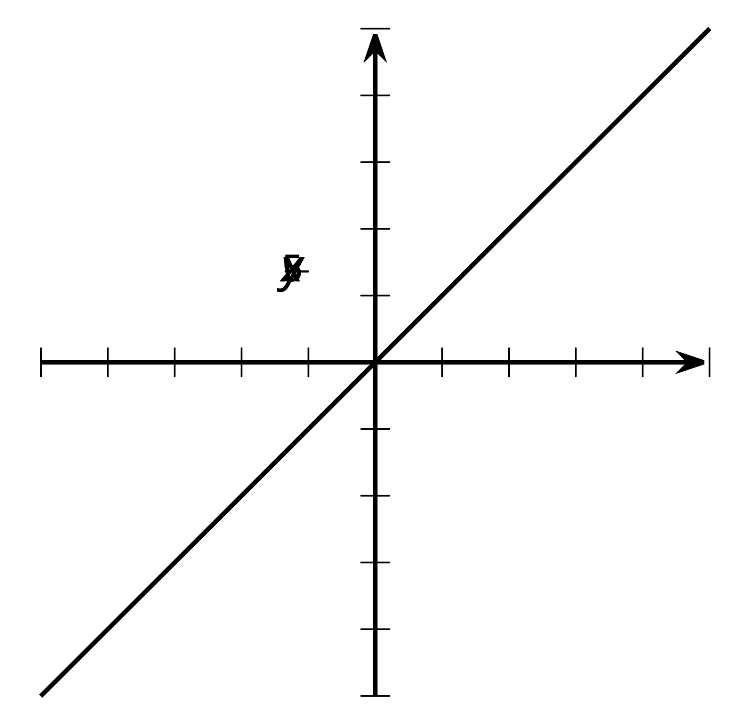
Evaluate each expression when is -5:

### 2 Equations and Their Graphs

#### Student Task Statement

1. Two students are evaluating when is -3. Here is their work. Do you agree with either of them? Explain your reasoning.

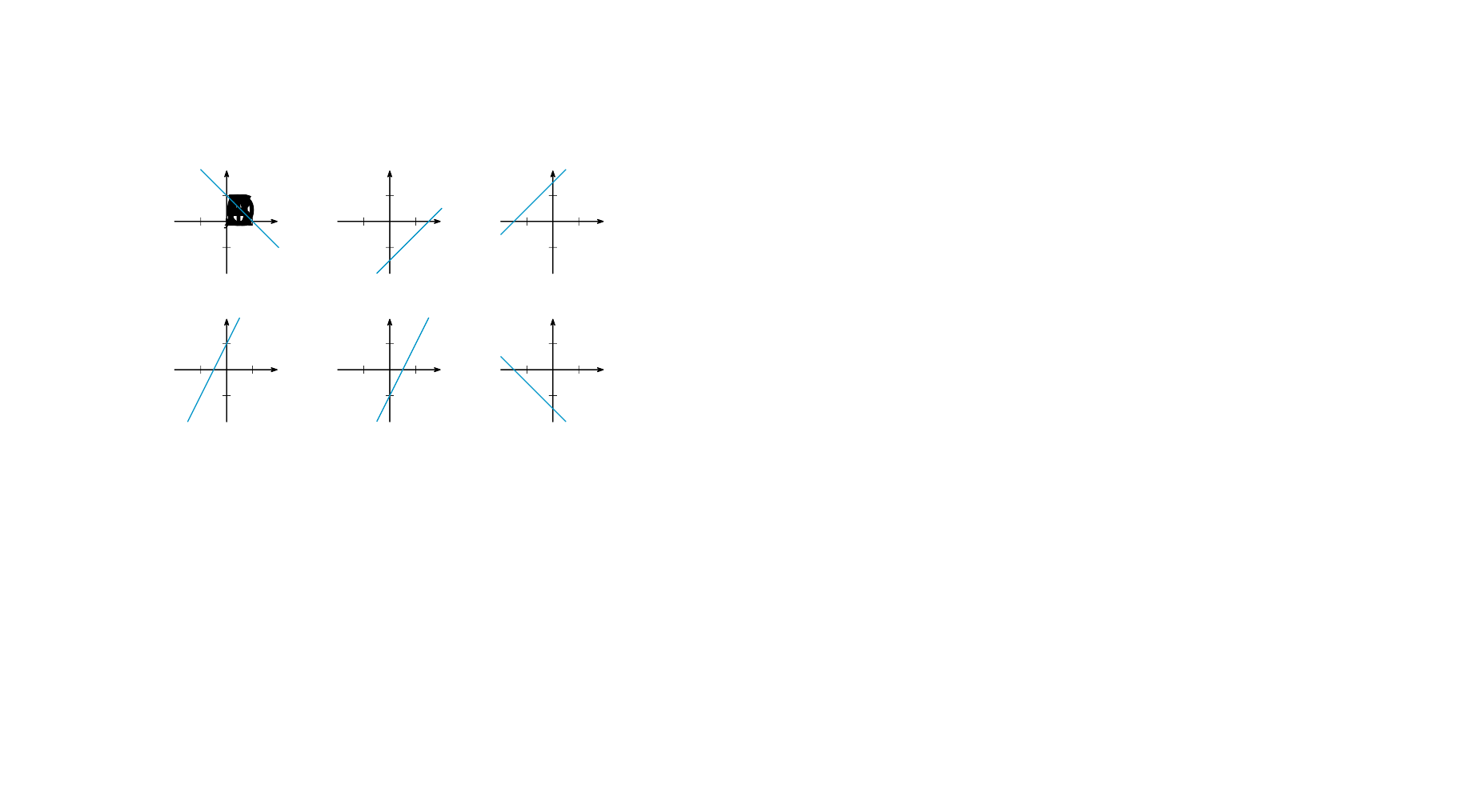
* Tyler:
* -2
* Lin:
* 16

1. Evaluate each expression when is -4:
2. Using graphing technology, graph . Then, experiment with the following changes to the function. Record your observations (include sketches, if helpful).
   1. Adding different constant terms to (for example: , ).
   2. Multiplying by different positive coefficients greater than 1 (for example: ).
   3. Multiplying by different positive coefficients between 0 and 1 (for example: ).
   4. Multiplying by negative coefficients of (for example: ).
3. Use your observations to sketch these functions on the coordinate plane, which currently shows .
   * 
   * 

### 3 Match the Graphs

#### Student Task Statement

1. Evaluate each expression when is -3.
2. For each graph, come up with an equation that the graph could represent. Verify your equation using graphing technology.

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