AIS

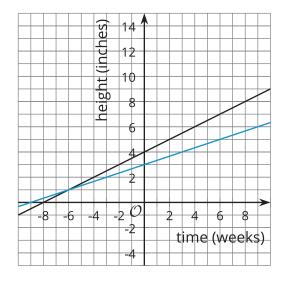
Quadratic Situations

Let's work with situations and quadratic equations.

24.1

Growing Plants

Plant A's height over time is represented by $y = \frac{1}{2}x + 4$. Plant B's height is $y = \frac{1}{3}x + 3$ for which x represents the number of weeks since the plants were found, and y represents the height in inches.



- 1. Which graph goes with which equation? How do you know?
- 2. What is a pair of values that works for Plant A but not B? What does it represent?
- 3. What is a pair of values that works for Plant B but not A? What does it represent?
- 4. What is a pair of values that works for both plants? What does it represent?

24.2 Diego's Plant

- 1. The height, in centimeters, of Diego's plant is represented by the equation $p(t) = -0.5(t-10)^2 + 58$, where t represents the number of weeks since Diego has started nurturing the plant. Decide if each statement is true or false. Explain your reasoning.
 - Diego's plant shrinks each week.

• Diego's plant is 8 centimeters tall when he starts to nurture it.

Diego's plant grows to be 58 centimeters tall.

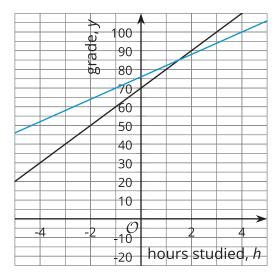
• The plant shrinks 4 weeks after Diego begins to nurture it.

2. Write your own true statement about Diego's plant.

24.3 Making the Grades

Jada's quiz grade after h hours of studying is given by the equation Q(h) = 10h + 70. Her test grade after h hours of studying is given by the equation T(h) = 6h + 76.

Here's a graph of both functions:



- 1. Which graph represents Jada's quiz grade after h hours of studying?
- 2. What do the y-intercepts of the lines mean in this situation?
- 3. Find the coordinates of the *y*-intercepts.
- 4. The 2 lines intersect at a point. What does that point represent in this situation?
- 5. Find the coordinates of the intersection point. Explain or show your reasoning.