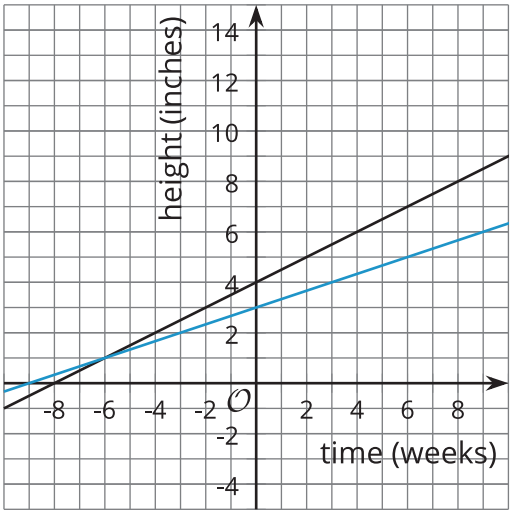
Lesson 24: Quadratic Situations

- 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. Determine if each statement is true or false. Explain your reasoning.

- Diego's plant shrinks each week.

- Diego's plant is 8 cm tall when he starts to nurture it.

- Diego's plant grows to be 58 cm tall.

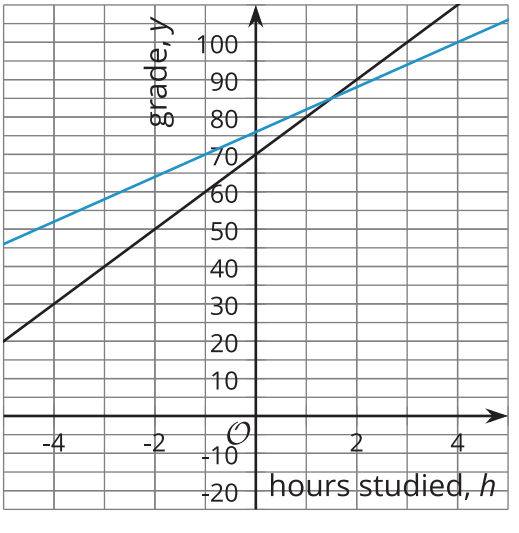
- The plant shrinks 4 weeks after Diego begins to nurture it.

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.