3.4 The Water Park
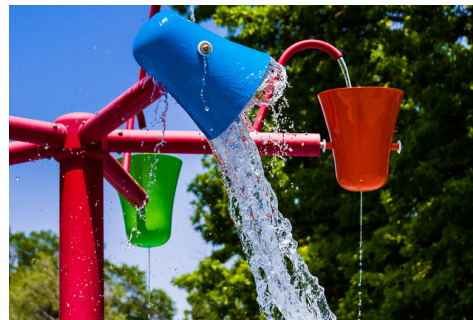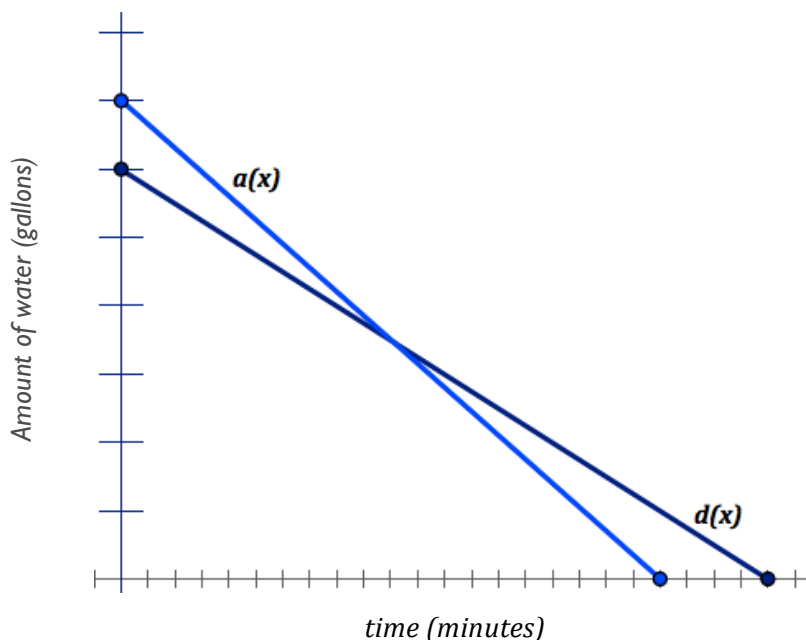
A Solidify Understanding Task

Aly and Dayne work at a water park and have to drain the water at the end of each month for the ride they supervise. Each uses a pump to remove the water from the small pool at the bottom of their ride. The graph below represents the amount of water in Aly's pool, *a(x)*, and Dayne's pool, *d(x)*, over time.

Part I

1. Make as many observations as possible with the information given in the graph above.

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Part II

Dayne figured out that the pump he uses drains water at a rate of 1000 gallons per minute and takes 24 minutes to drain.

2. Write the equation to represent the draining of Dayne's pool, *d(x)*. What does each part of the equation mean?

3. Based on this new information, correctly label the graph above.

4. For what values of *x* make sense in this situation? (Use interval notation to write the domain of the amount of water in Dayne's pool).

5. Determine the range, or output values, that make sense in this situation. (Use interval notation to write the range of the amount of water in Dayne's pool).

6. Write the equation used to represent the draining of Aly's pool, *a(x)*. Using interval notation, state the domain and range for the function, *a(x)* as well as the domain and range of the situation. Compare the two domains by describing the constraints made by the situation.

Part III

Based on the graph and corresponding equations for each pool, answer the following questions.

7. When is *a(x) = d(x)*? What does this mean?

8. Find *a(5).* What does this mean?

9. If *d(x)=2000*, then *x=* ___. What does this mean?

10. When is *a(x) > d(x)?* What does this mean?

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