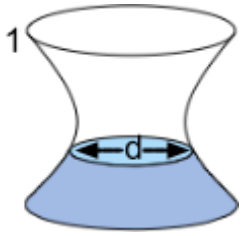
Practice Exercises
Name_____

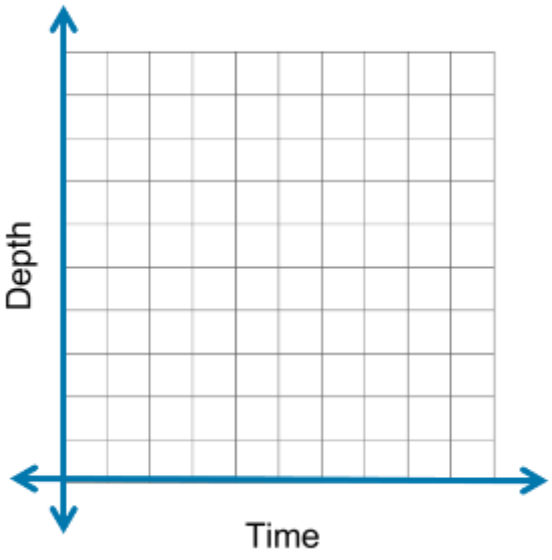
8.F.B.5
Date_____

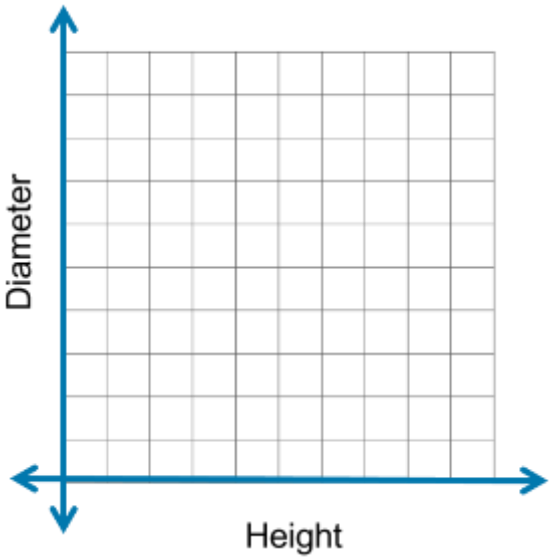
Set C

1. The containers below will be filled with water at a constant rate.

    a. Sketch a graph for each of the following containers being filled based on the given variables.

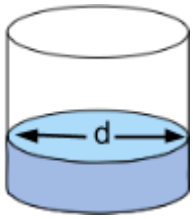


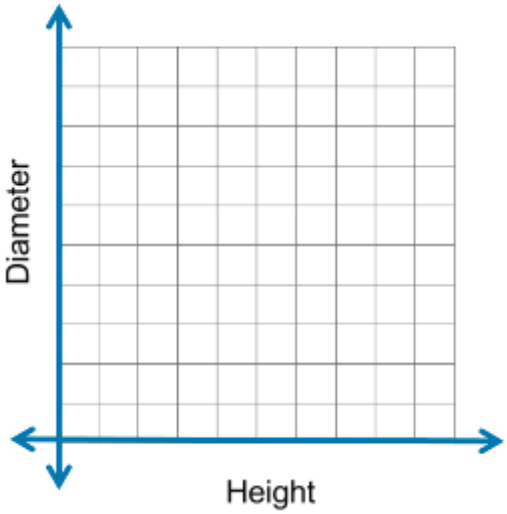


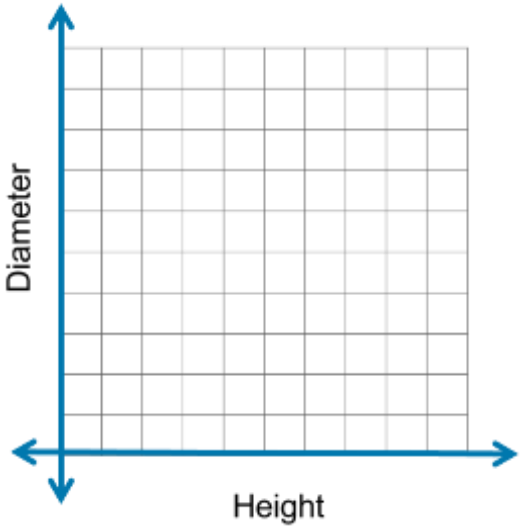


LearnZillion

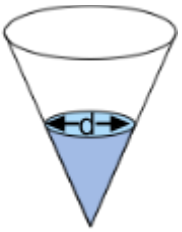
2

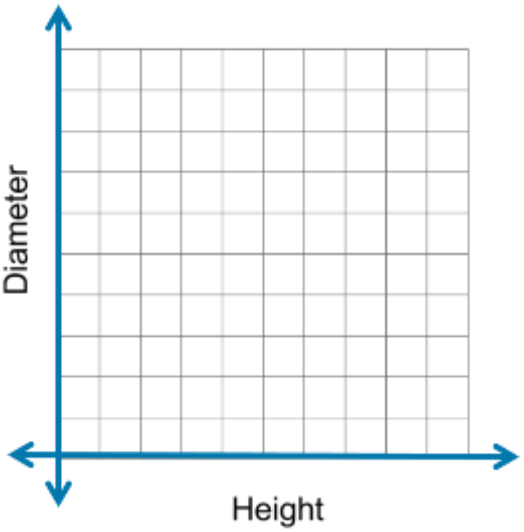


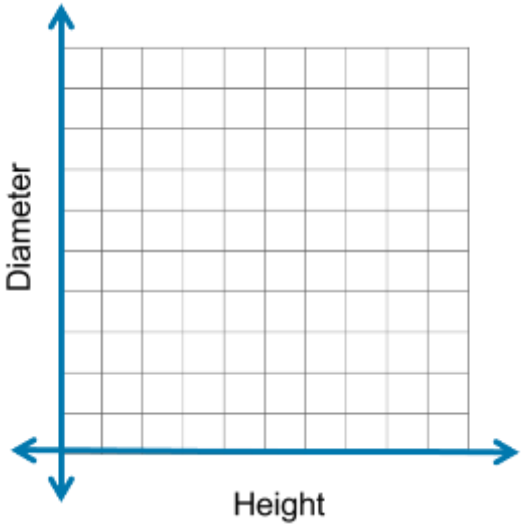




3







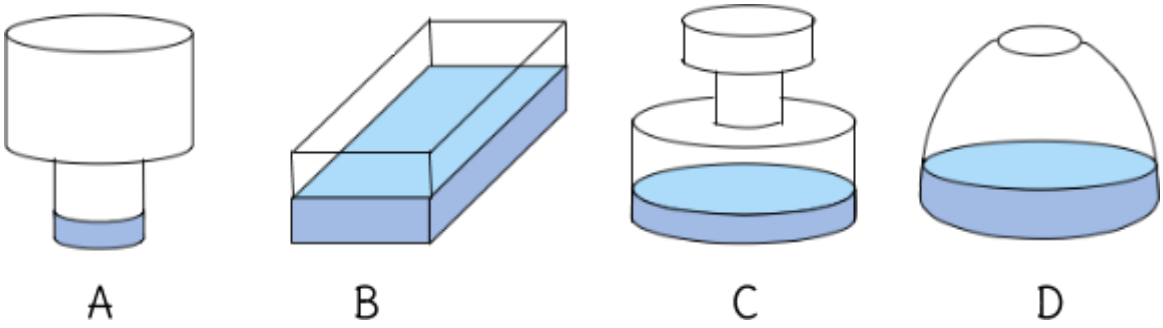
b. Compare the qualitative features of each set of graphs that you created. Explain the reason for any differences.

Comparison of graphs of container 1:

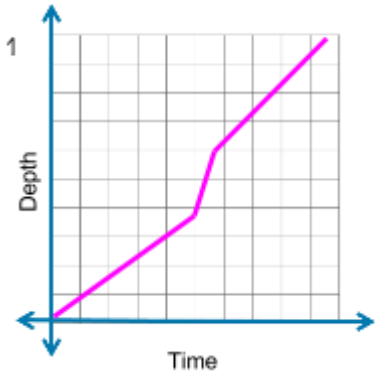
Comparison of graphs of container 2:

Comparison of graphs of container 3:

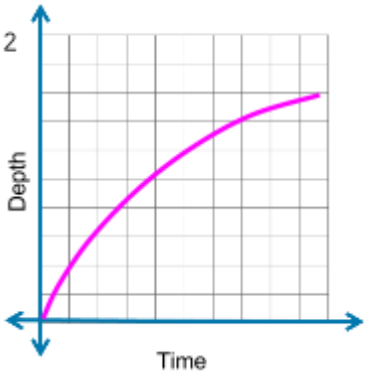
2. The following graphs of containers are filled with water at a constant rate.



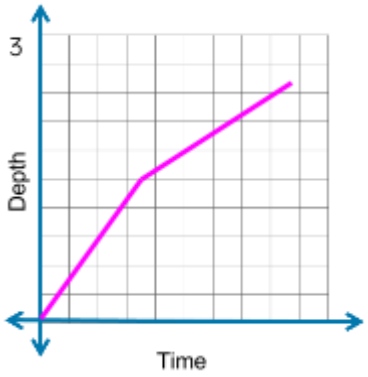
a. Match each of the containers with its correct graph.



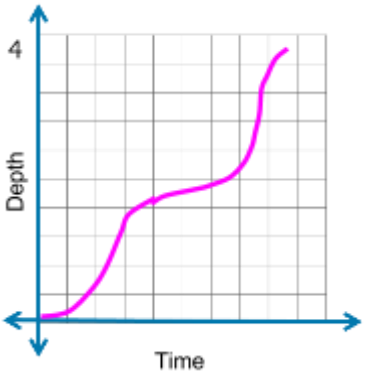
Container _____



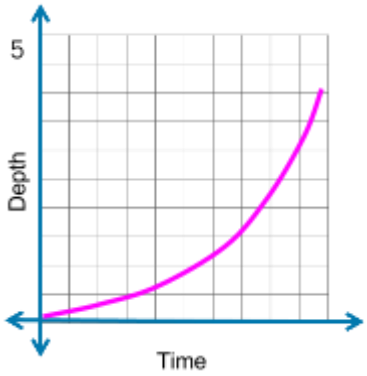
Container _____



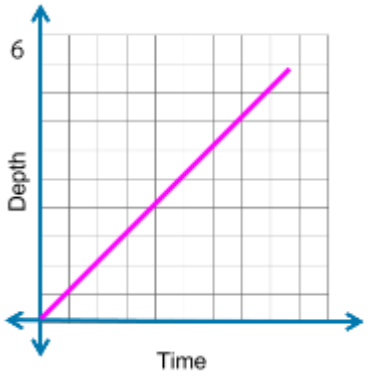
Container _____



Container _____



Container _____



Container _____

b. For the remaining unmatched graphs, draw a container that would match the graph.

Graph # _____

Graph # _____

c. Explain the qualitative features of one of the graphs.

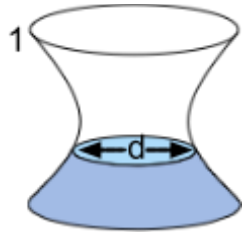
_____
_____
_____
_____

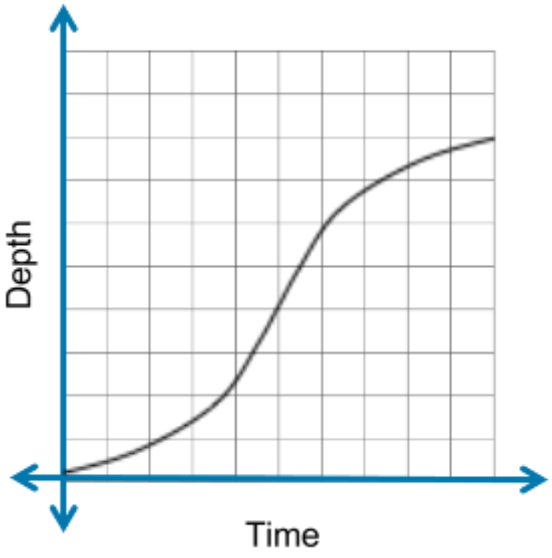
Practice Exercises
8.F.B.5
Set C

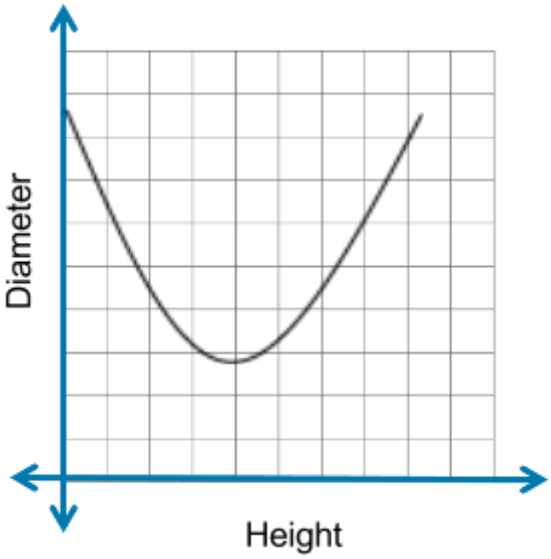
Answer Key

1. The containers below will be filled with water at a constant rate.

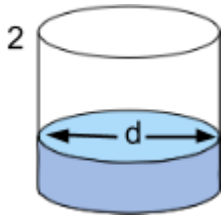
    a. Sketch a graph for each of the following containers being filled based on the given variables.

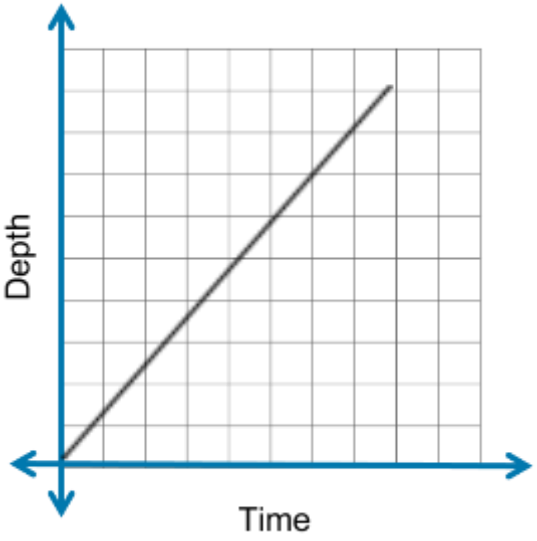


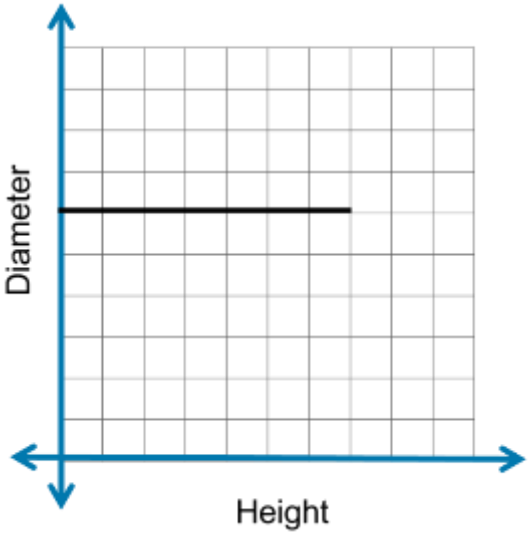




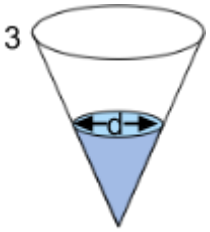
2

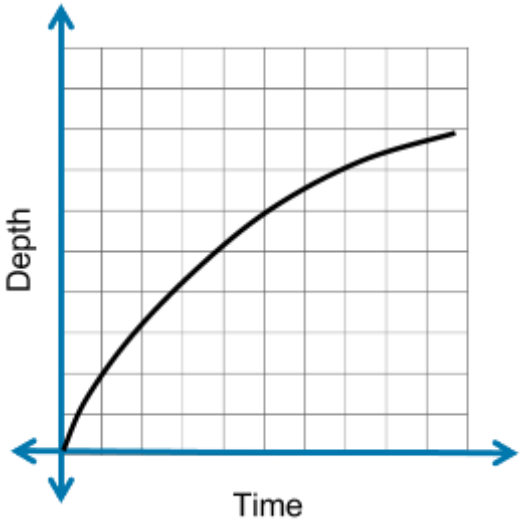


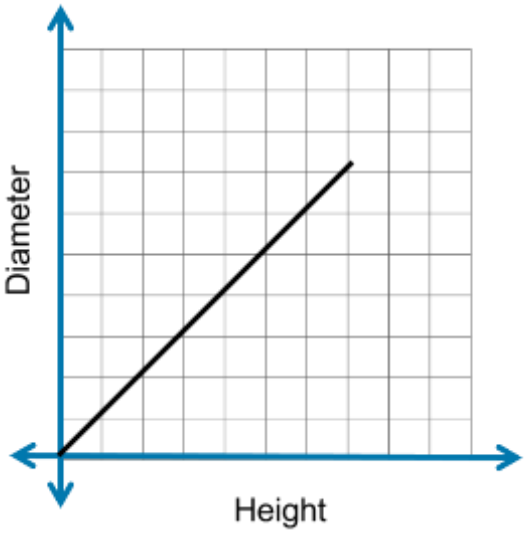




3







b. Compare the qualitative features of each set of graphs that you created. Explain the reason for any differences.

Comparison of graphs of container 1:

The container is wide at the bottom narrow in the middle and wide at the top. Because of this when looking at the depth of the water over time, the container will fill slowly at first and gradually decrease the time it takes to fill as the container narrows. The top part of the container is the same as the bottom so it would be the inverse or opposite feature of the bottom part. As for the height versus the diameter, the container starts with no height and the diameter is wide. The diameter narrows in the middle and then widens gradually. It creates a nonlinear U-shaped graph. Because of the shape of the container is symmetrical, both graphs are also symmetrical in their nature.

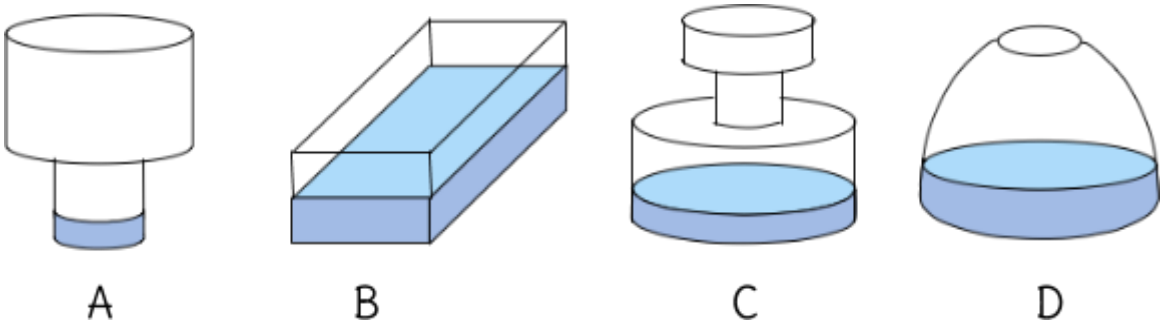
Comparison of graphs of container 2:

This container is a right cylinder and does not change shape at any part. Because of this when it is filled with water, the height will increase at a constant rate. This will create a linear representation. In addition, because it is a right cylinder the diameter of the cylinder never changes which results in a horizontal linear representation.

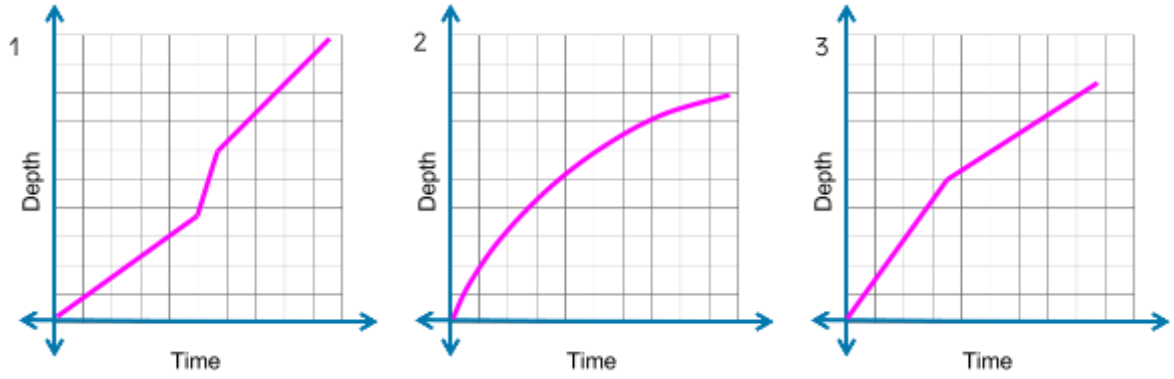
Comparison of graphs of container 3:

This container is cone shaped. It begins very narrow at the bottom and then widens at the top. Because the bottom is narrow, when filling the water will fill the narrowest part very fast. As the cone widens, the water takes longer to fill the space and slows as it approaches the widest part of the cone. As the height of the water increases so does the diameter of the cone. This results in a linear function.

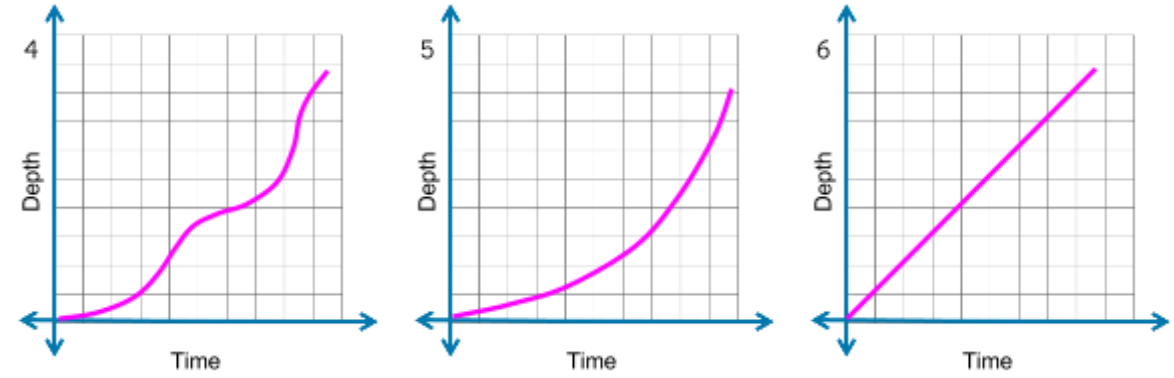
2. The following graphs of containers are filled with water at a constant rate.



a. Match each of the containers with its correct graph.



Container **C** Container _____ Container **A**

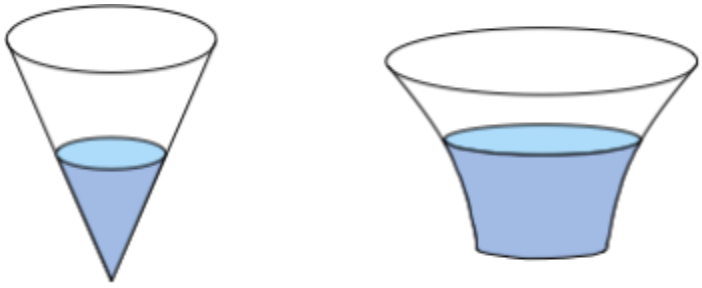


Container _____ Container **D** Container **B**

b. For the remaining unmatched graphs, draw a container that would match the graph

Graph # **2**

This is an example of potential containers



Graph # **4**

This is an example of a potential container

c. Explain the qualitative features of one of the graphs.

For graph 2: The container has a small bottom, so the container fills up this part very quickly. At some point the container begins to widen and the water fills this part slowly until it is completely filled

For graph 4: The container has a large base/bottom so it fills this part slowly. The container then narrows and the graph begins to fill more quickly. The last part of the container is the narrowest and continues to fill more quickly.