Name(s): _____ **Date:** _____

Pascal's Law Worksheet

1. In your own words, what did you just learn about Pascal's law?
    Write your **definition** of Pascal's law below:

    _____

    _____

    _____

2. There are two holes at different heights: Hole A and Hole B.
    What do you expect to happen when you remove the tape from one of the holes?
    What will happen as soon as the tape is removed?
    What will happen over time, as the water level drops in the bottle?
    Write your **hypothesis** below.

    _____

    _____

    _____

3. Let's find out what really happens… It is time to experiment! Make sure each person
    knows his/her task (have extra people help with measuring). As you conduct the
    experiment, have the "recorders" fill in the table below. Once your group is finished with
    the experiments, have the recorders share your results with the rest of the class.

| Table 1: Hole A height and distance measurements			
Time (sec)	**Horizontal distance (cm)**	**Water level (cm)**	**Water height above hole (cm)**
0*		21	= 21 − 6 = 15.0
30			
60			
90			
120			
150			
180			
210			

NOTE: On the tables, the starting times are shown as 0* since the jet distances are measured as soon as
the tape is removed (it won't be 0 cm!). It is okay if it takes a second or two to take your first measurement.

Table 2: Hole B height and distance measurements			
Time (sec)	**Horizontal distance (cm)**	**Water level (cm)**	**Water height above hole (cm)**
0*		21	= 21 − 15 = 6
30			
60			
90			
120?			

4. Write all your **observations** below.
   Hint: What happened? How fast and far did water come through the holes?
   What happened over time?

   _____

   _____

   _____

   _____

5. Graph the data from Table 1 and Table 2 on the blank graphs provided below.

Water height above hole (cm) vs Horizontal Distance$_{5cm}$ (cm))

Hole B
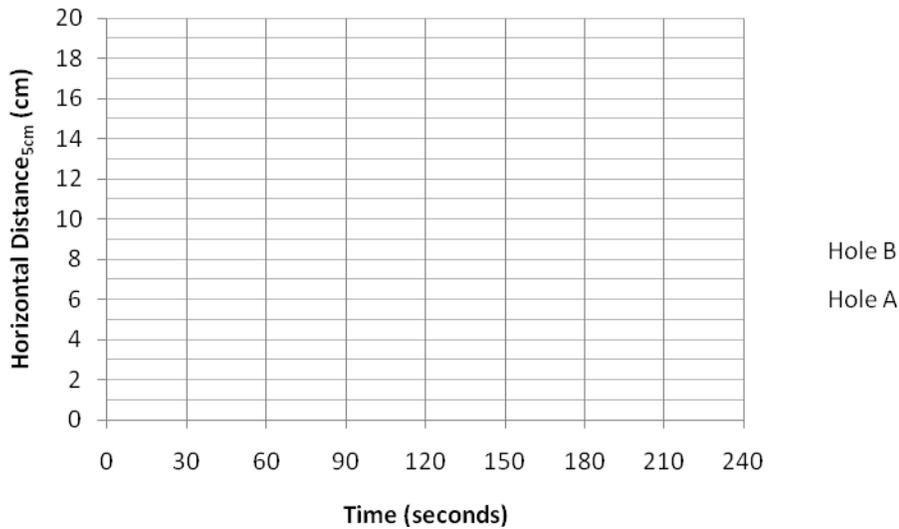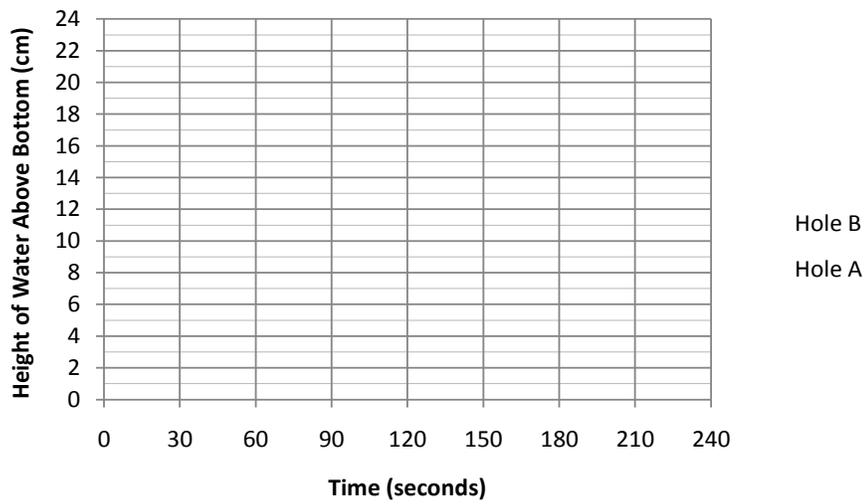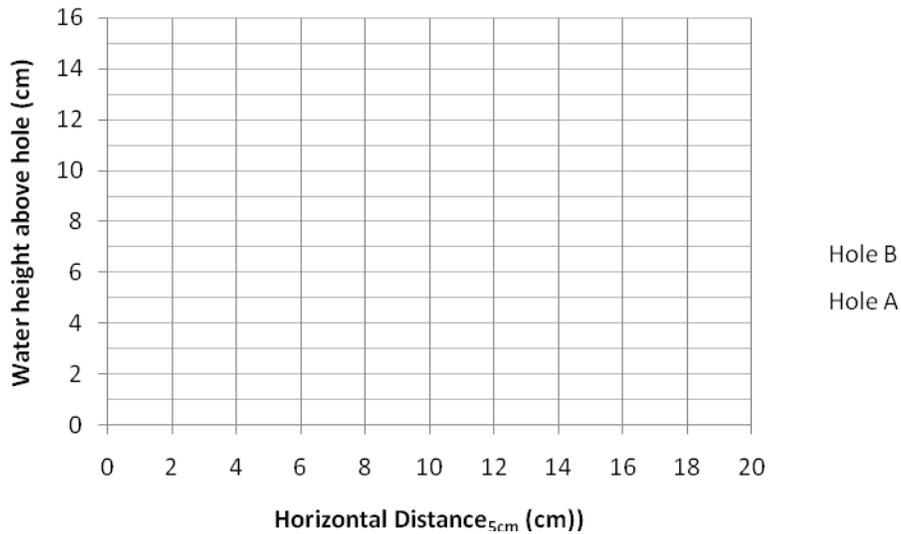
Hole A

6. What do the graphs tell you about the relationships between (a) water height above hole and time, (b) jet distance and time, and (c) water height above hole and jet distance? How are the graphs for the two different holes similar? Write your **analysis** below.

_____

_____

_____

_____

7. Use a calculator to answer the following questions. Show your work.

   A. What is the volume of a waterbed that is 7-feet long, 6-feet wide, and 2-feet high. What are the units of your answer?

   B. A cubic foot of water weighs 62.4 lbs. How much does the waterbed weigh?

   C. How do engineers use Pascal's law when designing locks and dams?

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_____

_____

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