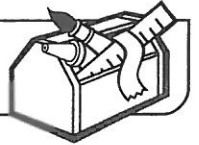


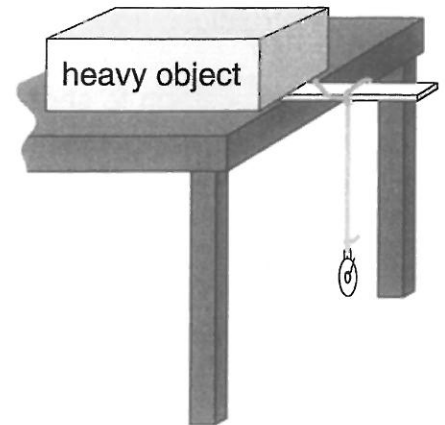
PROJECT
8

The Swing Time of Pendulums



1. Your teacher will demonstrate an experiment with a pendulum that is 50 cm long. Record the results below.

- a. It took about _____ seconds for 10 complete swings of the pendulum.
- b. About how much time did it take for one swing? Round your answer to the nearest 0.1 second.
 _____ second(s)



2. Form a pendulum that is 75 cm long. Time 10 complete swings of the pendulum. Time the swings to the nearest second.

Practice timing 10 complete swings several times. Then time 10 swings and record the results below.

- a. It took about _____ seconds for 10 complete swings of the pendulum.
- b. About how much time did it take for one swing? Round your answer to the nearest 0.1 second. _____ second(s)

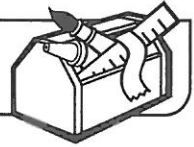
3. Record the results for a 50-cm and a 75-cm pendulum in the table at the right.

4. Experiment with different lengths of pendulum string.

Find the time for 10 complete swings for each of the other pendulum lengths. Time the 10 swings to the nearest 0.1 second. Record your results in the table.

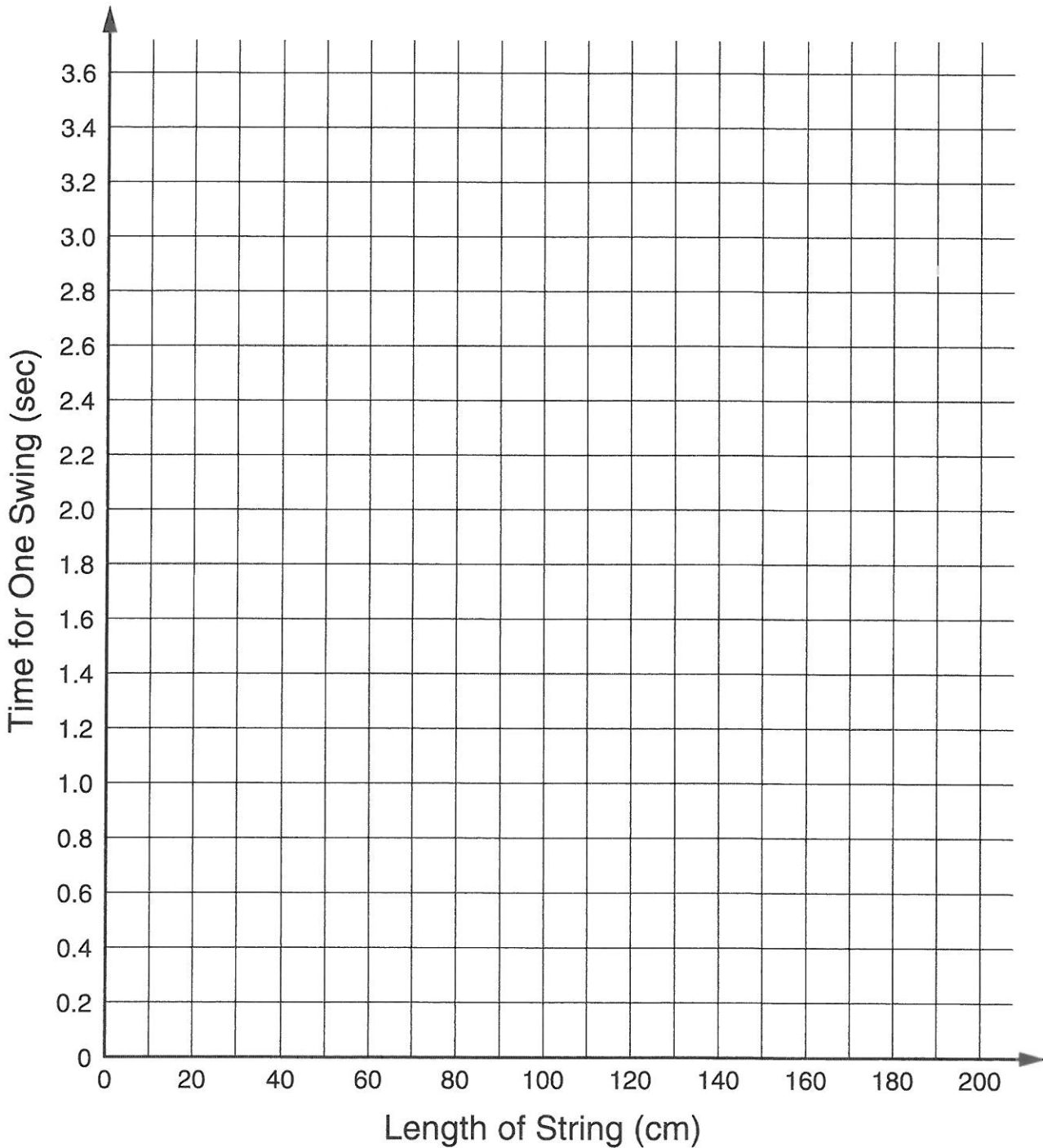
After collecting your data, divide each of the times by 10 to estimate the time for one complete swing. Record your answers in the table, rounded to the nearest 0.1 second.

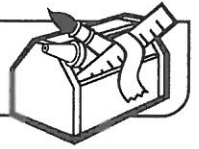
Length of Pendulum	Time for:	
	Ten Complete Swings (to nearest 0.1 sec)	One Complete Swing (to nearest 0.1 sec)
5 cm	_____ sec	_____ sec
10 cm	_____ sec	_____ sec
20 cm	_____ sec	_____ sec
30 cm	_____ sec	_____ sec
50 cm	_____ sec	_____ sec
75 cm	_____ sec	_____ sec
100 cm	_____ sec	_____ sec
200 cm	_____ sec	_____ sec

PROJECT
8**The Swing Time of Pendulums *cont.***

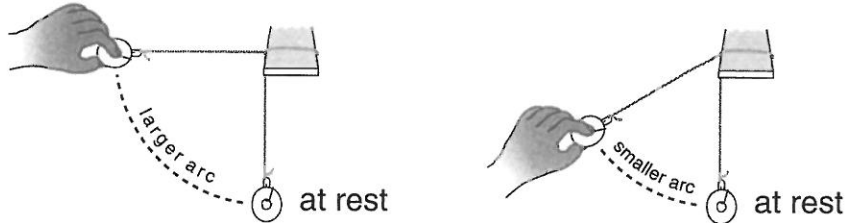
Wait for instructions from your teacher before drawing the graph in Problem 5.

5. Construct a graph to show the amount of time it took for each length of the pendulum to complete one swing.



**PROJECT
8****The Swing Time of Pendulums *cont.***

6. Experiment with different arc sizes. The largest arc is formed when the string of the pendulum is in a horizontal position. Does the size of the arc make much difference in the amount of time it takes for 10 complete swings?



7. Does the weight of the object at the end of a pendulum affect the time for a complete swing? Using a pendulum with a string 50 cm long, try different numbers of objects to find out if weight makes a difference in the time of the swing.

Length of Pendulum	Number of Weights (washers or other objects)	Time for 10 Swings (to nearest 0.1 sec)	Time for One Swing (to nearest 0.1 or 0.01 sec)
50 cm	1	sec	sec
50 cm	3	sec	sec
50 cm	5	sec	sec
50 cm	10	sec	sec

My conclusion: It seems that _____
