

Name: \_\_\_\_\_

# 11.1

## Harmonic Motion



Question: How do we describe the back-and-forth motion of a pendulum?

### 1 Setting up the pendulum

There are no questions to answer in part 1.

### 2 Testing the three variables

Follow the procedures and record your data in Table 1.

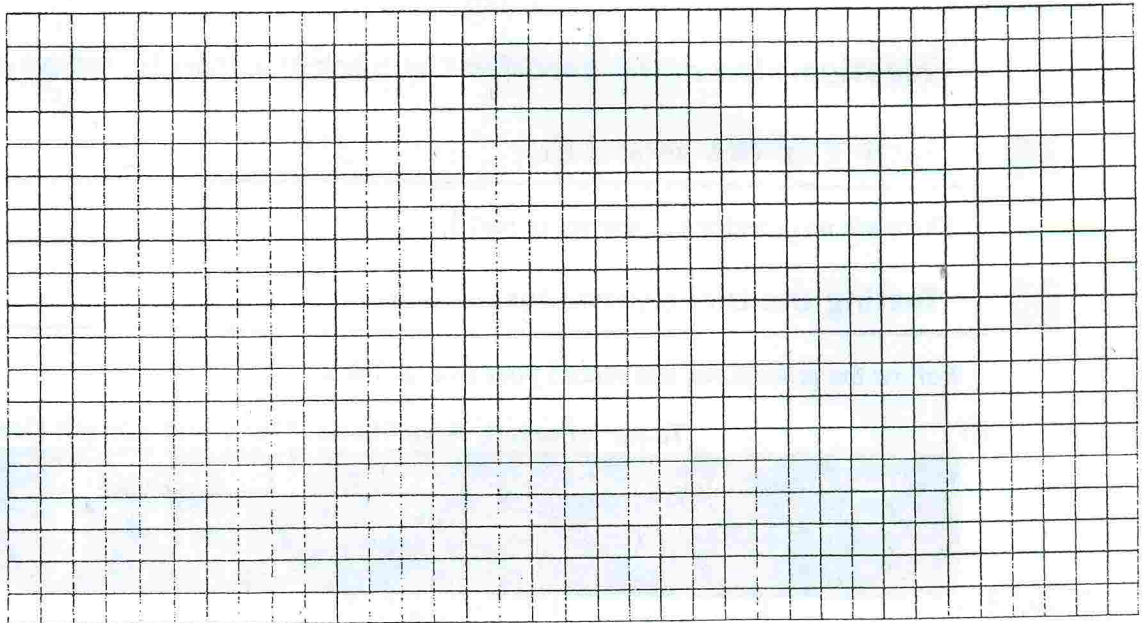
Table 1: Period, Amplitude, Mass, and Length Data

	Number of washers	Amplitude (degrees)	String length (cm)	Time from timer (seconds)	Period of pendulum (seconds)
Trial 1	1	10°	50 cm		
	2	10°	50 cm		
	3	10°	50 cm		
	4	10°	50 cm		
Trial 2	2	10°	50 cm		
	2	20°	50 cm		
	2	30°	50 cm		
	2	+ 30°	50 cm		
Trial 3	2	20°	40 cm		
	2	20°	60 cm		
	2	20°	80 cm		
	2	20°	100 cm		

Title: Trial 1

Period (sec)

y label:

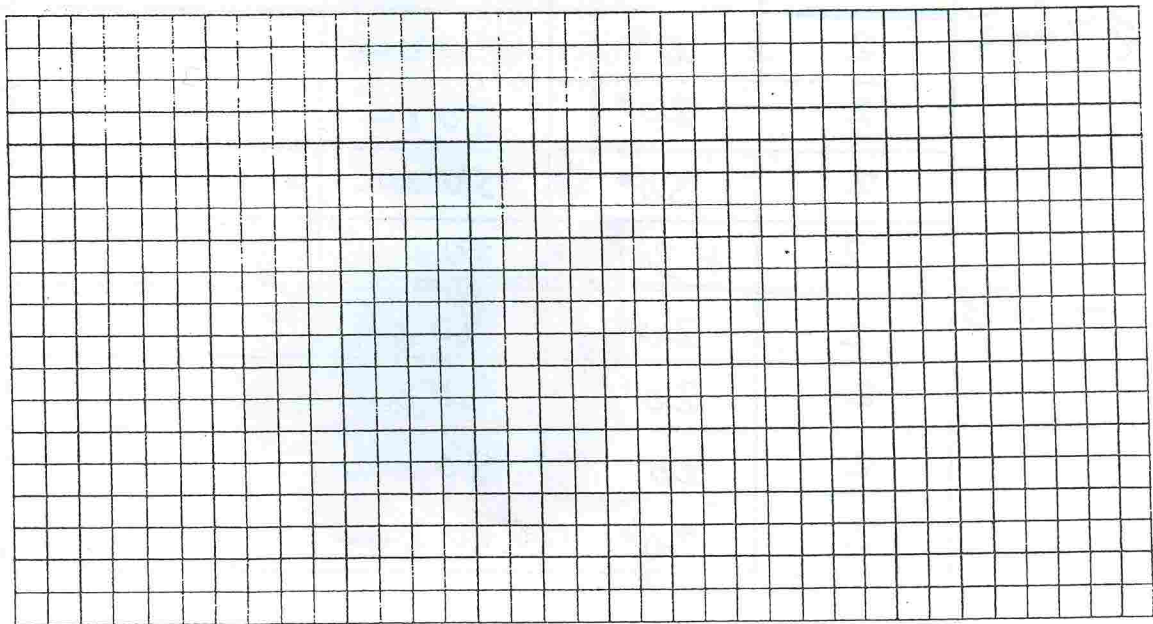


x label: Mass (# of washers)

Title: Trial 2

Period (sec)

y label:



x label: Amplitude (degrees)

3

### Analyzing the data

1

Of the three things you can change (length, mass, and angle), which one has the biggest effect on the pendulum, and why? In your answer you should consider how gravity accelerates objects of different mass.

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2

How would this information help clock/watch manufacturers

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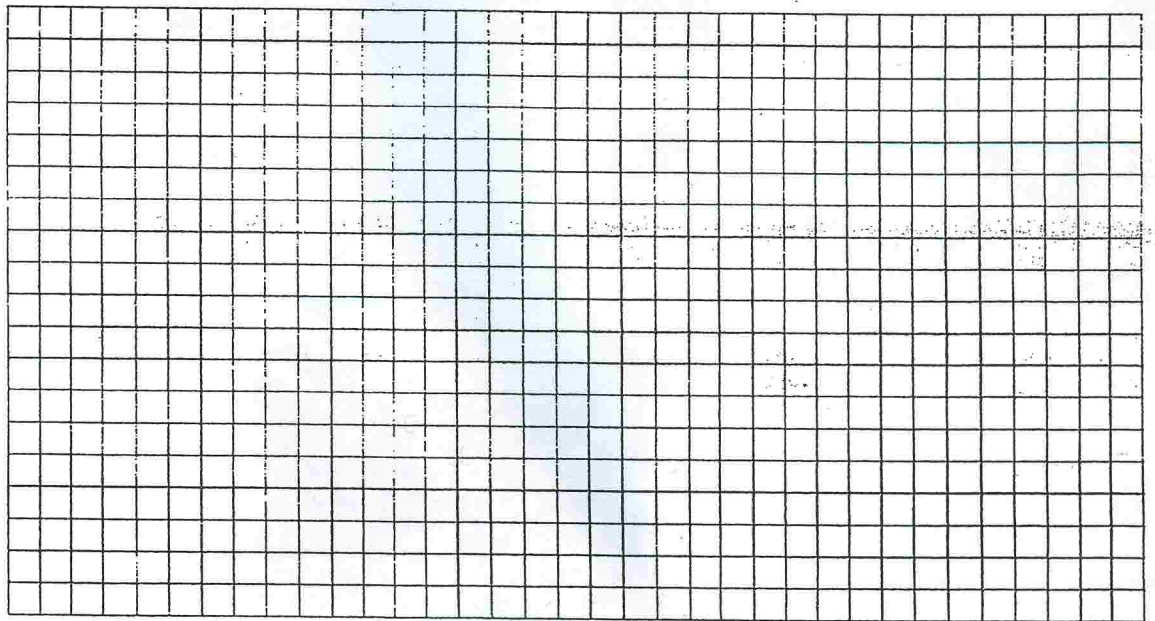
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b. Make three graphs, as instructed in the Investigation.

Title: Trial 3

Period (sec)

y label:



x label: Length (cm)