

ClockWorks Algebra 1

We wish to explore the Truth about time, and the collection of it, in this investigation.

I. How long was it?

1. In the table below give your **Best Guess** of the indicated times.

Number of Seconds	How Long this is (Years, Months, Weeks, Days, Hours, etc.)	What time will it be if you wait this number of seconds? (Month, Day, Year, Hour)
100 000		
1 000 000		
1 000 000 000		
1 000 000 000 000		

Time Now:

Day = _____ Month = _____ Year = _____ Hour = _____

2. In the table below give the **Truth** as extracted from the Calculator.

Number of Seconds	How Long is this? (Years, Months, Weeks, Days, Hours, etc.)	What time will it be if you wait this number of seconds? (Month, Day, Year, Hour)
100 000		
1 000 000		
1 000 000 000		
1 000 000 000 000		

3. Reflect on your guesses, as compared to the Truth in question 2.

II. Time Measuring

1. You need to run the program TIMER on your TI-82 or TI-83. Press F1 to start and F1 to stop the timer.

```
EXEC EDIT NEW
TIMER
```

```
PrgrmTIMER
```

```
17.3
```

2. We need to calibrate the timer in your calculator by making some test runs. Follow Mr. Young's instructions and adjust your program as needed. Change the number (in this case 12.07) to modify the speed at which the clock runs. The larger the number, the faster the clock runs.

```
EXEC EDIT NEW
TIMER
```

```
PROGRAM:TIMER
:6-19-1998
:
:Normal
:Float
:Radian
:Func
:Connected
```

```
PROGRAM:TIMER
:Stop
:End
:X+1→X
:iPart((X/12.07)
*10)/10→T
:ClrHome
:Output(4,7,T)
```

Record your modifications in the Table below:

Trial Number	True Time	Your Time	Error (True - Your)	Number in Program (12.07)	Your number for the next trial
1					
2					
3					
4					

Use the last number, from the last Trail.

3. With your partner, run the TIMER program to get the "time" for 7 seconds. One of you will watch the clock in the room, and the other will "drive" the stopwatch. For 7 trials, have the clock-watcher say START and STOP to time 7 seconds as shown by the clock recording the TIMER results in the table below. Switch roles and repeat the process for 7 more trails.

Trial	Truth (sec)	Measured Time (sec)
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		

Your Name: _____ Your Partner's Name: _____

4. Do the 1-Variable Stats on this data and report in the table below.

<i>n</i>	Mean	Median	Mode	Max	Min

5. Calculate your Error:

$$Error = \frac{|Truth - Mean|}{Truth} * 100\%$$

6. Make a Box and Whiskers graph of the data.

7. Make a Histogram of the data.

8. Do a T-Test on the data at the 0.05 level for p.

9. Explain why or why not, your TIMER results were “like” the clocks.