

Practice with Graphing

1. You collected data on the amount of rain that fell over a period of time. Your data is recorded in the table below. Identify the independent and dependent variables, and graph the data on a sheet of graph paper.

Time (days)	Depth of rainwater in gauge (cm)
0	1.000
10	2
20	4
30	8
40	12
50	15

2. A student collects data in an experiment involving acids and bases. The student is adding base to an acid and noting the pH. Using the data below, complete the following steps.
- a. What is the independent variable? The dependent variable?

b. Graph the data on a sheet of graph paper.

c. Based on your graph, describe the rate at which the pH increased as more NaOH was added.

ml of NaOH added	pH reading	ml of NaOH added	pH reading
0	4.9	11	5.9
1	4.9	12	6.2
2	5.1	13	6.5
3	5.2	14	7.7
4	5.3	15	10.4
5	5.3	16	10.8
6	5.3	17	11.0
7	5.5	18	11.3
8	5.6	19	11.3
9	5.7	20	11.9
10	5.8		

3. Use the equation $y = 3x + 5$ to find at least five data points, and then graph the data on a sheet of graph paper. What type of relationship does this graph show?

4. You collected the following data for the volume of a gas at different pressures.

Pressure (atm)	Volume (L)
.100	244
.200	112
.400	56
.600	37.3
.800	28

- Graph the data on a sheet of graph paper.
- What type of relationship does the graph show? How do you know?

5. A student runs an experiment to determine the solubility of an unknown substance over a range of temperatures. Using the data collected from the experiment, complete the following steps.

Temperature (°C)	Solubility (g/100 g of H ₂ O)
0	5.5
10	6.1
20	8.6
30	11.2
40	30.1
50	38.5
60	45.6

- Graph the data on a sheet of graph paper.
- What is the solubility of the substance at 35°C? at 70°C?

6. A student performs an experiment to determine the melting temperature of a solid. The energy supplied to the system from the heating element remains constant throughout the experiment. Using data collected from the experiment, complete the following steps.

Time (min)	Temp (°C)	Time (min)	Temp (°C)
0	32.1	3.5	61.3
0.5	63.3	4.0	61.6
1.0	52.2	4.5	62.0
1.5	59.1	5.0	64.3
2.0	61.1	5.5	67.4
2.5	61.5	6.0	68.9
3.0	61.5	6.5	69.8

- Graph the data on a sheet of graph paper.
- What conclusions can you draw from your graph about the way the solid absorbs heat?