ACTIVITY 3

The Four
Quadrants

TOPIC 2   LESSON 3

Getting
Started   1

Activity
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Talk
the Talk

Weigh In

You can also solve problems using a coordinate plane with data points where no graphed line is drawn.

HABITS OF MIND
- Model with mathematics.
- Use appropriate tools strategically.

Julio is a wrestler for his high school team. During this season he will wrestle in the 142-pound weight class. His coach would like him to stay around 140 pounds leading up to the season.

Julio charted his weight over 10 weeks and created a graph based on his data.

Preseason Training
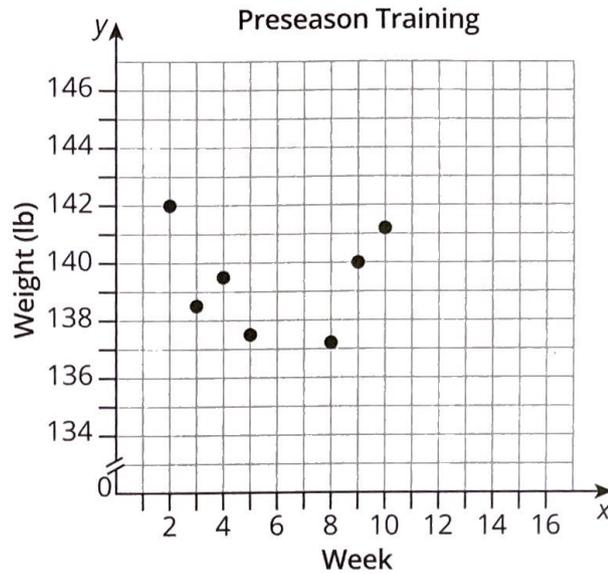
Week	2	3	4	5	7	8	9	10
Weight	142.1	138.5	139.5	137.5	136.25	137.2	140	141.3
Weight Differential	2.1	−1.5	−0.5	-2.5	-3.75	-2.8	0	1.3

1. Consider the table shown.

   a. Identify the independent and dependent quantities. **Explain your reasoning.**

   weight : dependent
   week : Independent

   The weight depends on the week

TAKE NOTE...
The break on the *y*-axis above shows that the interval from 0 to 134 is not equal to the rest of the intervals.

   b. What is the unit for each quantity?

   week = week
   weight = pounds

2 The coach was impressed with Julio's data collection, but he was interested in how much Julio's weight varied from 140 pounds each week.

(a) Complete the last row: the differences of Julio's weight from 140 pounds. Use negative numbers when the weight is below 140 pounds and positive numbers when his weight is above 140 pounds.

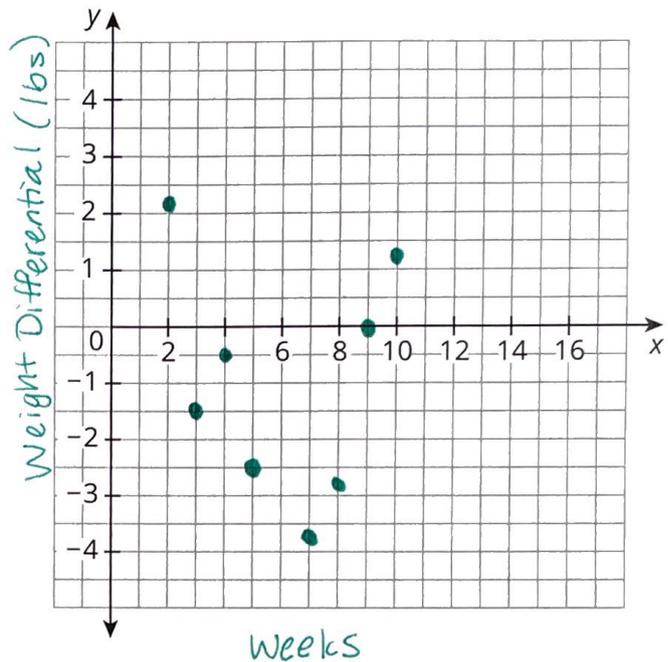(b) What is the dependent quantity in this situation?

Weight differential depends on the weight

(c) Which quadrant(s) will you need to plot Julio's data for the coach's request? Draw and label your axes, including the units. Then graph the data.

Q I & IV

(d) Explain the meaning of the x-axis in the coach's graph.

The x axis is the target weight (140 lbs)

3 Use the table and graphs to answer each question.

(a) Between which two recorded consecutive weeks did Julio's weight change the most? What was the weight change?

Week 2 & 3

$$|2.1| + |-1.5| = 3.6 \text{ pounds}$$

(b) What is the difference between Julio's highest and lowest recorded weights?

$$|2.1| + |-3.75| = 5.85 \text{ pounds}$$

(c) Which representation—table, Julio's graph, the coach's graph—did you use to answer the questions? **Why did you make those choices?**

Table. On the graph it is hard to tell the exact values when decimals are involved.