POWER BASICS ✚ PLUS

Algebra

Workbook

Table of Contents

Table of Contents, *continued*

Table of Contents, *continued*

UNIT 1 • ACTIVITY 1
What Are Negative and Positive Numbers? I

Look at the graph below. Then answer the questions that follow.

Elevations of Some Areas in United States

Areas

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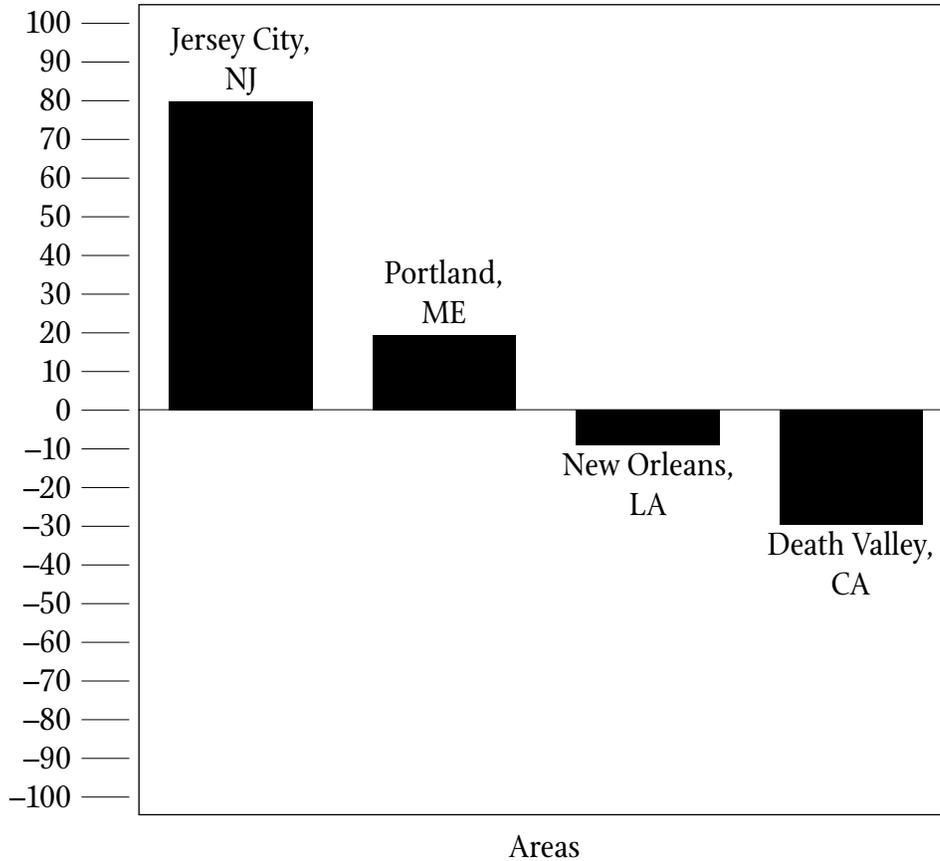
1. What elevation in feet represents sea level? _____

2. What areas have elevations that are given in positive numbers? _____

   _____

3. In relation to sea level, what do positive numbers represent? _____

4. What areas have elevations that are given in negative numbers? _____

   _____

5. In relation to sea level, what do negative numbers represent? _____

   _____

Unit 1: Algebra Basics • Algebra

UNIT 1 • ACTIVITY 2
What Are Negative and Positive Numbers? II

Complete each number line by writing the missing negative numbers.

1.

−1   1   2   3   4   5
0

2.

−5   −3   −1   1   2   3   4
0

3.

2   4   6   8
0

4.

−35   −25 −20   −10   5
0
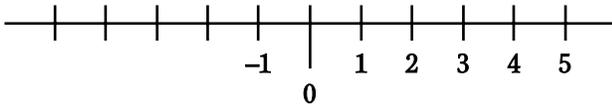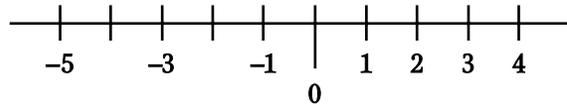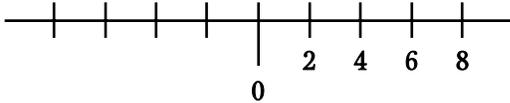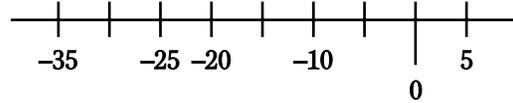
Complete each number line by writing the missing positive numbers.

5.

−5 −4 −3 −2 −1   1
0

6.

−5 −4 −3 −2 −1   1   3   4
0

7.

−6 −4 −2   4   8
0

8.

−20 −10   30 40 50 60
0
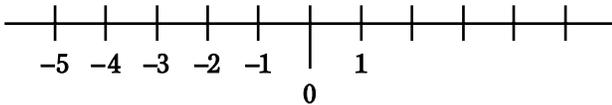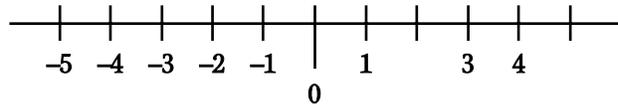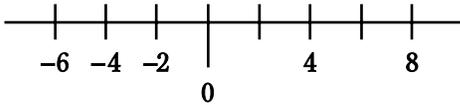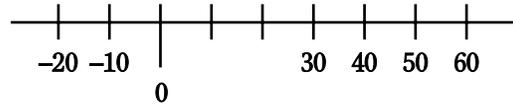
Complete each number line by writing the missing negative and positive numbers.

9.

−2   −1 −.5   .5   1.5
0

10.

$-2\frac{1}{2}$ $-1\frac{1}{2}$ −1 $-\frac{1}{2}$ 0 $\frac{1}{2}$ 1 $1\frac{1}{2}$ $2\frac{1}{2}$
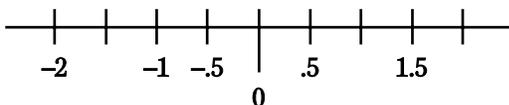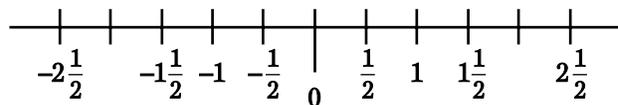
UNIT 2 • ACTIVITY 35
The Distance/Rate/Time Formula I

Use the distance/rate formula, $D = r(t)$, to solve each problem below.

1. A bus travels 60 mph for 6 hours on the highway. How far did the bus travel?

   _____

2. A space shuttle travels at 500 mph for 10 hours. How many miles has the shuttle traveled?

   _____

3. Tami can rollerblade at a rate of 15 mph. If she rollerblades for 180 miles, how many hours has she rollerbladed? _____

4. A free-flying balloon travels at a rate of 20 mph. If it travels 460 miles before running into the side of a mountain, how many hours has the balloon been free flying? _____

5. Bianca flies in her glider for 4 hours and travels 256 miles. What is the average rate of speed of the glider? _____

6. A train traveled 1800 miles in 9 hours. How fast was the train going? _____

7. A sailboat travels 70 kilometers in 4 hours. What is its average rate of speed?

   _____

8. A truck driver drives at a speed of 65 mph for 6 hours on highway 95. How far has the driver traveled? _____

UNIT 2 • ACTIVITY 36
The Distance/Rate/Time Formula II

Suppose you ride your bike to the library 8 miles away at rate of 4 mph on a calm day. However, when you ride your bike to the library on a windy day, you lose a mile an hour. Your rate is now 4 – 1 = 3 mph. You might think that the wind would have no effect on a round-trip time because the wind would speed up your bike ride from the library at a rate of 4 + 1 = 5 mph. However, the tables below show that the time it takes to make a round-trip does increase.

Using Distance ÷ Rate = Time

No wind

	Rate	Time	Distance
One way	4 mph	2	8
Way back	4 mph	2	8

Total time = 2 + 2 = 4 hours

With wind

	Rate	Time	Distance
One way	4 – 1 = 3 mph	$\dfrac{8}{3}$	8
Way back	4 + 1 = 5 mph	$\dfrac{8}{5}$	8

Total time = $\dfrac{8}{3} + \dfrac{8}{5} = 4\dfrac{4}{15}$ hours

Imagine you can paddle a canoe at 3 mph in still water. If there is a current, the canoe can travel at 4 mph going downstream but only 2 mph against the current on the way back. Fill in the tables to show how the time for a 6-mile round-trip changes from still water to water with a current.

1. Still water

	Rate	Time	Distance
One way			
Way back			

Total time = _____

2. Current

	Rate	Time	Distance
One way			
Way back			

Total time = _____

UNIT 5 • ACTIVITY 100
Using the Quadratic Formula to Solve Word Problems

Use the quadratic formula to solve each word problem. Check your work by substituting your solutions into the variable of your original equation. Write your answer on the line.

1. The length of a rectangle is 6 more than its width. If the area is 16 square centimeters, what is the length and width of the rectangle?

    Length = _____

    Width = _____

    Check work:

2. The radius of a circle is 5 less than x. If the area of the circle is 36π square feet, what is the radius? (Use $A = \pi r^2$.)

    Radius = _____

    Check work: