



Foundations of Algebra

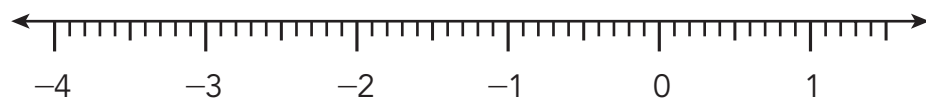
Week # 2

Quiz 1

POSITIVE AND NEGATIVE NUMBERS

1. Place and label these five numbers on the number line shown.

$$-\frac{1}{2} \quad \frac{3}{4} \quad -3.9 \quad -2 \quad 1.2$$



2. For each pair of numbers, write one of the symbols $<$, $=$, or $>$ in the box to show the relationship of the two numbers.

For example: $2 \square 3$

a. $-3.9 \square -3.11$

b. $-\frac{7}{9} \square -\frac{7}{10}$

c. $-(-3) \square 3$

d. $-3 + (-8) \square -3$

3. Calculate.

a. $(-6) + 8$

b. $-6 - 8$

c. $68 - (-25)$

d. $72 + (-3.7)$

Quiz 2

POSITIVE AND NEGATIVE NUMBERS

Use the following expressions.

A $(-5) \div [(-8) \cdot (-10)]$

B $[(-5) \cdot (-8)] \cdot (-10)$

C $[(-5) - (-8)] - (-10)$

D $(-5) - [(-8) \cdot 10]$

E $[(-5) \cdot (-10)] + [(-8) \cdot (-10)]$

F $[(-5) \cdot (-8)] - (-10)$

1. Which expression has the same value as $(-5) + [(-8) \cdot (-10)]$?

2. Which expression has the same value as $(-5) \cdot [(-8) \cdot (-10)]$?

3. Which expression has the same value as $(-5) - [(-8) + (-10)]$?

4. Which expression has the same value as $[(-5) \div (-8)] \div (-10)$?

5. Which expression has the same value as $[(-5) + (-8)] \cdot (-10)$?

6. Which expression has the same value as $10 - [5 + (-8)]$?

End-of-Unit Assessment

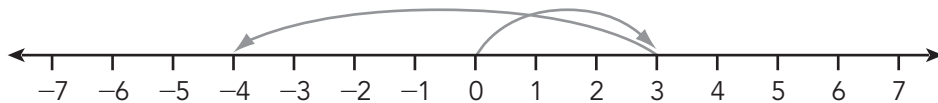
POSITIVE AND NEGATIVE NUMBERS

SHORT ANSWER

1. Use the following five numbers: -20 , -18 , -1 , 0.5 , 5 .

- Which is the greatest number?
- Which is the least number?
- Which number is the farthest from zero on the number line?
- Which numbers are ≥ -1 ?
- Which two numbers are closest to each other on the number line?

2. Write an addition equation that matches the diagram.



3. a. Calculate.

$$-8 - (+12)$$

b. Calculate.

$$-8 + (-12)$$

c. Explain why subtracting a number gives the same result as adding its opposite.

End-of-Unit Assessment continued

4. Write an example of two numbers, p and q , that meet all four of these conditions.

- The sum, $p + q$, is a negative number.
- The difference, $p - q$, is a negative number.
- The product, pq , is a positive number.
- pq is closer to zero than q .

5. Calculate.

a. $-5 - (-18)$

b. $5 - (-7)$

c. $-8 \cdot (-9)$

d. $6 \div (-24)$

e. $5 + (-9) - 7 - (-4)$

f. $-5 \cdot 6 - (-8 \div 2)$

g. $[-5 \cdot 6 - (-8)] \div 2$

h. $[-2 \cdot (-2) \cdot (-2)] - [3 \cdot (-2)]$

6. Solve $|x| = \frac{11}{2}$. Write your answer as a fraction and a decimal.

Quiz 1

RATIO AND PROPORTIONALITY

1. Protractors are supplied to Lakeside Middle School in boxes of one dozen.

COMMENT

A dozen is equal to 12.

- a. Use a ratio table to find the number of protractors in 9, 7, and 5 boxes.
- b. A teacher ordered 216 protractors. How many boxes will be supplied?

2. Eighty notebooks are supplied to Lakeside Middle School in ten equal-sized packs.

- a. Use a ratio table to find the number of notebooks in one pack.
- b. Extend your ratio table and find the number of notebooks in 8, 15, and 22 packs.
- c. A teacher ordered 352 notebooks. How many packs will be supplied?

Quiz 2

RATIO AND PROPORTIONALITY

1. A car travels 350 miles in 5 hours.

- a. At what rate did the car travel in miles per hour?

- b. At this rate, how far will the car travel in 8 hours?

2. A photograph is 10 inches wide by 25 inches high.

- a. What is the ratio of the width to the height?

- b. If an enlarged copy of the picture is 32 inches high, what is its width?

- c. What is the enlarged version as a percent of the original version?

Quiz 3

RATIO AND PROPORTIONALITY

1. At Gino's Deli you can buy ham for \$8.50 for two pounds. At Dino's Deli, ham costs \$12.30 for three pounds.

a. What is the unit price of ham at each store?

b. If Dino's Deli changed its unit price so that it is the same as at Gino's Deli, what would be the new price for five pounds of ham at Dino's?

2. Marco drives on the freeway at a constant speed and travels 6160 feet in 60 seconds. At this rate, what distance would he cover in 2 minutes?

3. Say whether each of the following tables of values is a ratio table. If the relationship is proportional, give the value of k , the constant of proportionality, and write the rule.

a.

x	5	7	9	11
y	7	9	11	13

b.

x	5	8	11.1	20.5
y	13	20.8	28.86	53.3

End-of-Unit Assessment

RATIO AND PROPORTIONALITY

SHORT ANSWER

1. On Kim's farm there is a total of 27 cats and dogs. The ratio of cats to dogs is 5 : 4.
 - a. How many cats are there?
 - b. What percentage of the total is dogs?

2. Dwayne is making cookies. His recipe calls for 2 eggs and $\frac{1}{4}$ cup of butter for 30 cookies.
 - a. If he uses 3 eggs, how much butter will he need?
 - b. How many cookies will he make with 3 eggs?
 - c. If he uses 5 eggs, how much butter will he need?
 - d. How many cookies will he make with 5 eggs?

3. Frank wants to make a postcard that is 3 in. \times 5 in. He has one picture that is 12 in. \times 15 in. and another picture that is 15 in. \times 25 in.
 - a. Which picture can he use to make the postcard?
 - b. What scale factor would he use to reduce the picture?

End-of-Unit Assessment continued

4. Three pounds of peanuts cost \$4.05.
- What is the unit price of peanuts?
 - How much do 5 pounds of peanuts cost?
 - How many pounds of peanuts can be purchased for \$9.45?
5. There are 2.54 cm in an inch. There are 0.3937 in. in a centimeter.
- Write the conversion factors for centimeters to inches and for inches to centimeters. Remember that conversion factors are unit ratios.
 - How many centimeters are there in 5 in.?
 - How many inches are there in 12 cm? Round to the nearest tenth of an inch.

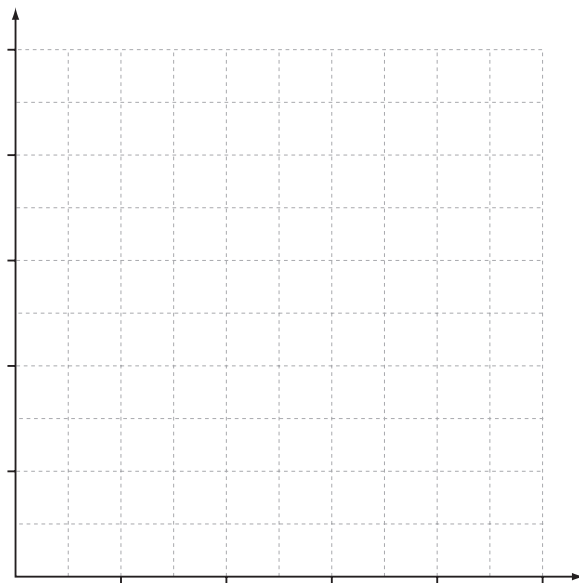
End-of-Unit Assessment continued

6. An empty water tank is being filled at the rate of 20 liters per minute.

a. Make a table with five realistic pairs of values for the quantities volume (in liters) and time (in minutes).

b. Is there a proportional relationship between the two quantities? Say how you know.

c. Represent the relationship as a graph using your table of values.



d. Write an equation for the relationship and use it to find the volume of water in the tank after 11.5 minutes.

e. How long does it take for the tank to contain 1000 liters of water? Explain how you know.