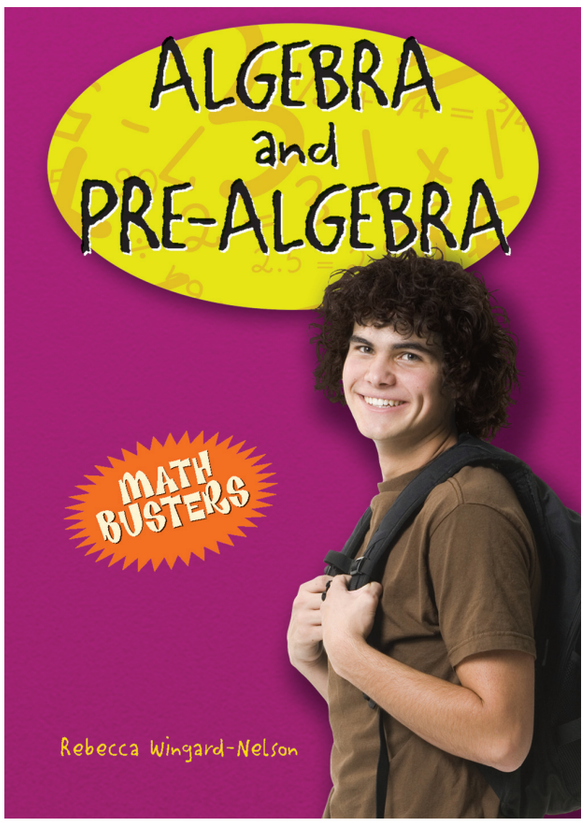
Math Busters Reproducible Worksheets

Reproducible Worksheets
for:

Algebra and Pre-Algebra



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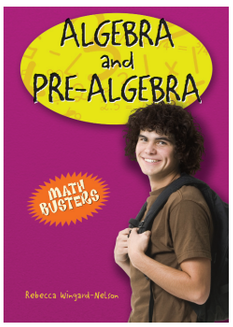

These worksheets practice math concepts explained in **Algebra and Pre-Algebra** (ISBN: 978-0-7660-2879-1), written by **Rebecca Wingard-Nelson.**

Math Busters Algebra and Pre-Algebra reproducible worksheets are designed to help teachers, parents, and tutors use the books from the Math Busters series in the classroom and the home. The answers to the problems are contained in the Answers section starting on page 59.

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Name _____ **Date** _____

Integers

Write an integer to describe each value.

Example: Nick spent ten dollars. -10

a. The temperature dropped seven degrees Fahrenheit. _____

b. Harold climbed to the top of Mt. Everett, Massachusetts. It is 2,608 ft. above sea level. _____

c. Dion's account was debited $25 for a purchase. _____

d. Tennyson earned 3 credits in college. _____

e. Cody was working out regularly. As a result, he gained 15 pounds of muscle. _____

f. Pedro found a $10 bill on the ground. _____

g. Write a situation that can be described by a negative integer.

_____

_____

h. Write a situation that can be described by a positive integer.

_____

_____

Name _____ **Date** _____

Integers

Write an integer to describe each value.

a. Juanita lost 5 pounds. _____

b. The Marianas Trench (the deepest point of the earth's crust) reaches a depth of nearly 11 km below sea level.
_____

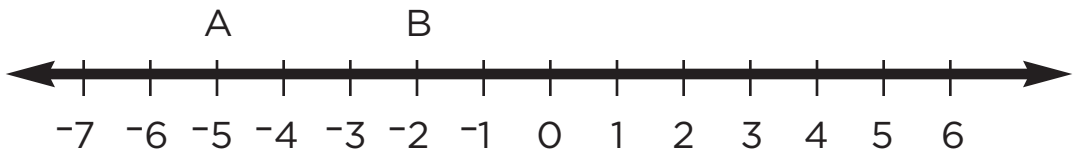
c. What integer is the opposite of $^{-}45$? _____

d. What integer is the opposite of 33? _____

e. Is 0 a natural number? _____

f. Is 7 a natural number? _____

g. Is 14 a whole number? _____



h. How many units from zero is point A? _____

i. What integer is the opposite of point B? _____

Name _____ **Date** _____

Rationals

Classify each number as a rational or irrational number.

a. $\frac{2}{3}$ b. 1.25768. . . c. $^{-}31$ d. $1.\overline{2}$

e. 3.14159..... f. $8.\overline{75}$ g. 5.32 h. 1.33

Tell all the names that apply to each number.

i. 15 j. $^{-}24$ k. 1.23519. . . l. 3.41

m. Is every whole number an integer? _____

n. Is every integer a whole number? _____

o. Can an irrational number be an integer? _____

p. Is every rational number a real number? _____

q. Is every whole number a rational number? _____

r. Is every natural number a whole number? _____

Name _____ **Date** _____

Rationals

Classify each number as a rational or irrational number.

a. $\frac{9}{3}$ b. $\frac{10}{1}$ c. 2.1221222... d. 20.4

e. π f. $6\frac{1}{5}$ g. $4.\overline{5}$ h. -3.14

Circle each name that applies to the given number.

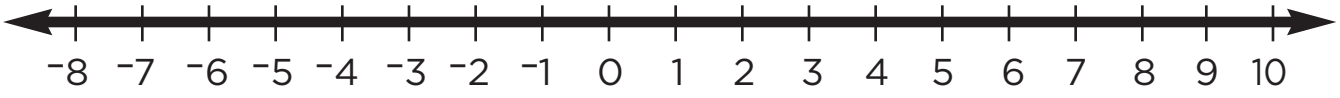
Example:

-6.2	(real)	(rational)	irrational	integer	whole	natural
i. 12	real	rational	irrational	integer	whole	natural
j. 0.863. . .	real	rational	irrational	integer	whole	natural
k. -3	real	rational	irrational	integer	whole	natural
l. $\frac{2}{7}$	real	rational	irrational	integer	whole	natural
m. 0	real	rational	irrational	integer	whole	natural
n. $-6.\overline{4}$	real	rational	irrational	integer	whole	natural
o. π	real	rational	irrational	integer	whole	natural

Name _____ **Date** _____

Comparing Numbers

Use the number line to answer questions a–o.



a. Which number has a greater value, −2 or −6? _____

b. Which number has a greater value, 0 or −4? _____

c. Which number has a greater value, 1 or 3? _____

Order the integers from least to greatest.

d. −4, 5, 0, −6

e. 3, −5, 1, 4

f. 2, −2, −1, 9

Use the symbols <, >, or = to compare the numbers.

Example: −7 < 10

g. 0 2

h. −3 7

i. −8 −4

j. 5 9

k. −7 −1

l. 2 −2

m. 4 −6

n. −5 0

o. 1 1

Name _____ Date _____

Comparing Numbers

a. From left to right on the number line do the numbers get larger or smaller?

b. Order the integers from least to greatest. $^{-}15$, $^{-}44$, $^{-}23$, $^{-}34$

c. Missy gained 1 pound, Barney gained two, and Chester lost 3. Write each weight change as an integer. Order the integers from least to greatest.

d. On five consecutive nights the low temperatures were 12°F, 6°F, $^{-}2$°F, 0°F, and $^{-}3$°F. What was the lowest temperature?

e. Esta recorded the temperature at the same time for four days. The results were $^{-}3$°F, 0°F, $^{-}5$°F, $^{-}8$°F. Arrange the temperatures in order from coldest to warmest.

Use the symbols <, >, or = to compare the numbers.

f. 5 ___ 3

g. $^{-}8$ ___ 7

h. $^{-}4$ ___ $^{-}4$

i. $^{-}7$ ___ $^{-}4$

j. 23 ___ $^{-}18$

k. 33 ___ $^{-}33$

Circle the greater number.

l. $^{-}7$ 8

m. $^{-}5$ $^{-}2$

n. 15 $^{-}45$

Circle the smaller number.

o. $^{-}5$ $^{-}6$

p. 16 $^{-}18$

q. 14 $^{-}15$

Name _____ **Date** _____

Absolute Value

Find each absolute value.

Examples: $|^{-}3| = 3$
$|3| = 3$

a. $|^{-}6|$ b. $|45|$ c. $|^{-}360|$

d. $|^{-}39|$ e. $|456|$ f. $|375|$

g. $|^{-}56|$ h. $|83|$ i. $|^{-}44|$

Find each sum or difference.

Examples: $|2| + |5| = 2 + 5 = 7$;
$|8 - 7| = |1| = 1$

j. $|4| + |7|$ k. $|15| - |9|$ l. $|12| + |10|$

m. $|8 + 7|$ n. $|8 - 5|$ o. $|5 - 1|$

p. $|5 - 3|$ q. $|5| - |3|$ r. $|8 - 8|$

Name _____ **Date** _____

Absolute Value

Find each absolute value.

Examples: $|-0.3| = 0.3$
$|0.3| = 0.3$

a. $|1.5|$

b. $|3.7|$

c. $\left|-\frac{2}{7}\right|$

d. $|0.568|$

e. $|-18.2|$

f. $|-9.7|$

g. $\left|-\frac{5}{6}\right|$

h. $\left|\frac{5}{6}\right|$

i. $|4.4|$

Find each sum or difference.

Examples: $|2| + |1.6| = 2 + 1.6 = 3.6$
$|2.3 + 2| = |4.3| = 4.3$

j. $|8.7| + |0.1|$

k. $|2.0| - |0.5|$

l. $\left|\frac{3}{4}\right| + \left|\frac{1}{2}\right|$

m. $\left|\frac{3}{4}\right| - \left|\frac{1}{2}\right|$

n. $\left|\frac{3}{4} + \frac{1}{2}\right|$

o. $\left|\frac{3}{4} - \frac{1}{2}\right|$

p. $|8.2 - 3|$

q. $|1.8 + 1.2|$

r. $|12.5 - 7.2|$

Name _____ **Date** _____

Addition: Like Integers

Example: Add $^{-}3 + {}^{-}9$.

Step 1: Pretend the signs are not there. $^{-}3 + {}^{-}9$
Step 2: Add. $3 + 9 = 12$
Step 3: Put the same sign on the sum. $^{-}3 + {}^{-}9 = {}^{-}12$

a. $^{-}6 + {}^{-}2 =$ _____ b. $^{+}8 + {}^{+}1 =$ _____ c. $^{-}10 + {}^{-}7 =$ _____

d. $^{-}5 + {}^{-}5 =$ _____ e. $^{-}4 + {}^{-}15 =$ _____ f. $^{+}2 + {}^{+}7 =$ _____

g. $^{+}14 + {}^{+}12 =$ _____ h. $^{-}20 + {}^{-}4 =$ _____ i. $^{+}19 + {}^{+}7 =$ _____

j. $\begin{array}{r} {}^{+}3 \\ +\ {}^{+}1 \\ \hline \end{array}$ k. $\begin{array}{r} {}^{-}5 \\ +\ {}^{-}4 \\ \hline \end{array}$ l. $\begin{array}{r} {}^{+}6 \\ +\ {}^{+}3 \\ \hline \end{array}$ m. $\begin{array}{r} {}^{-}8 \\ +\ {}^{-}8 \\ \hline \end{array}$

n. $\begin{array}{r} {}^{-}8 \\ +\ {}^{-}5 \\ \hline \end{array}$ o. $\begin{array}{r} {}^{-}2 \\ +\ {}^{-}6 \\ \hline \end{array}$ p. $\begin{array}{r} {}^{+}1 \\ +\ {}^{+}7 \\ \hline \end{array}$ q. $\begin{array}{r} {}^{-}9 \\ +\ {}^{-}4 \\ \hline \end{array}$

r. $\begin{array}{r} {}^{-}28 \\ +\ {}^{-}37 \\ \hline \end{array}$ s. $\begin{array}{r} {}^{-}40 \\ +\ {}^{-}53 \\ \hline \end{array}$ t. $\begin{array}{r} {}^{+}72 \\ +\ {}^{+}37 \\ \hline \end{array}$ u. $\begin{array}{r} {}^{-}55 \\ +\ {}^{-}15 \\ \hline \end{array}$

Name _____ **Date** _____

Addition: Like Integers

a. $\begin{array}{r} -39 \\ +\ -45 \\ \hline \end{array}$

b. $\begin{array}{r} +124 \\ +\ +523 \\ \hline \end{array}$

c. $\begin{array}{r} -520 \\ +\ -431 \\ \hline \end{array}$

d. $\begin{array}{r} -623 \\ +\ -256 \\ \hline \end{array}$

e. $\begin{array}{r} -236 \\ +\ -194 \\ \hline \end{array}$

f. $\begin{array}{r} +159 \\ +\ +294 \\ \hline \end{array}$

Write an integer equation for each problem and solve it.

g. Mt. Hood in Oregon is 11,249 feet above sea level. Mt. McKinley in Alaska is 9,071 feet taller than Mt. Hood. What is the height above sea level of Mt. McKinley?

h. The deepest lake in the United States is Crater Lake. It is about 608 m deep. The average depth of the Grand Canyon is about 992 m deeper than Crater Lake. What is the average depth of the Grand Canyon?

i. Bryce had $215 in his checking account. How much will he have after depositing $441?

Name _____ **Date** _____

Addition: Unlike Integers

Example: Add $^{-}4 + {}^{+}1$.

Step 1: Pretend the signs are not there. $^{-}4 \quad {}^{+}1 \quad 4 \quad 1$
Step 2: Subtract the smaller number from the larger number. $4 - 1 = 3$
Step 3: Put the sign of the larger number on the sum. $^{-}4 + {}^{+}1 = {}^{-}3$

a. $^{-}7 + {}^{+}2 =$ _____ b. $^{+}7 + {}^{-}5 =$ _____ c. $^{-}3 + {}^{+}8 =$ _____

d. $^{-}12 + {}^{+}6 =$ _____ e. $^{+}11 + {}^{-}7 =$ _____ f. $^{+}1 + {}^{-}10 =$ _____

g. $^{+}12 + {}^{-}6 =$ _____ h. $^{+}4 + {}^{-}5 =$ _____ i. $^{-}5 + {}^{+}4 =$ _____

j. $\begin{array}{r} {}^{+}3 \\ + {}^{-}1 \\ \hline \end{array}$ k. $\begin{array}{r} {}^{-}3 \\ + {}^{+}4 \\ \hline \end{array}$ l. $\begin{array}{r} {}^{-}8 \\ + {}^{+}1 \\ \hline \end{array}$ m. $\begin{array}{r} {}^{-}1 \\ + {}^{+}8 \\ \hline \end{array}$

n. $\begin{array}{r} {}^{+}12 \\ + {}^{-}5 \\ \hline \end{array}$ o. $\begin{array}{r} {}^{-}2 \\ + {}^{+}7 \\ \hline \end{array}$ p. $\begin{array}{r} {}^{+}10 \\ + {}^{-}7 \\ \hline \end{array}$ q. $\begin{array}{r} {}^{+}9 \\ + {}^{-}9 \\ \hline \end{array}$

r. $\begin{array}{r} {}^{+}38 \\ + {}^{-}35 \\ \hline \end{array}$ s. $\begin{array}{r} {}^{+}50 \\ + {}^{-}18 \\ \hline \end{array}$ t. $\begin{array}{r} {}^{+}16 \\ + {}^{-}32 \\ \hline \end{array}$ u. $\begin{array}{r} {}^{-}75 \\ + {}^{+}50 \\ \hline \end{array}$

Name _____ **Date** _____

Addition: Unlike Integers

a. $^{-}54 + {}^{+}36$

b. $^{+}78 + {}^{-}42$

c. $^{-}87 + {}^{+}87$

d. $^{-}85 + {}^{+}33$

e. $^{+}89 + {}^{-}52$

f. $^{+}20 + {}^{-}107$

Write an integer equation for each problem and solve it.

g. A company earned a gross profit (before expenses) of $3686. They had expenses of $2793. What was their net profit (after expenses)?

_____

h. In a football game, the Spartans gained 37 yards, then gained 18 yards. What was their total gain or loss?

_____

i. Harold watches his weight during football season. The first day during practice he lost 8 pounds. In the evening, he worked at a pizza shop and gained 6 pounds. What was his total gain or loss for the day?

_____

Name _____ **Date** _____

Adding Rationals

Find each sum.

a. $+8.32 + +5.19$

b. $-8.1 + -2.5$

c. $+3.27 + -1.82$

d. $+1.50 + +1.50$

e. $-4.34 + -8.00$

f. $+6.28 + -9.29$

g. $+3\frac{1}{2} + +4\frac{1}{4}$

h. $-3\frac{1}{3} + -7\frac{1}{6}$

i. $-2\frac{3}{8} + +1\frac{1}{4}$

j. The temperature at 5:00 AM was $-9.6°$.
By 2:00 PM the temperature had gone up 23°.
What was the temperature at 2:00 PM?

k. Peter had 133 1/2 pounds of corn.
He burned 72 1/3 pounds of corn to heat his house.
How much corn was left?

Name _____ **Date** _____

Adding Rationals

Find each sum.

a. $+4.28 + +4.01$

b. $-3.8 + -6.2$

c. $-5.01 + +7.21$

d. $+7.32 + +3.50$

e. $-8.99 + -2.00$

f. $+4.16 + -3.07$

g. $+6\frac{1}{4} + +2\frac{1}{4}$

h. $-3\frac{1}{3} + -3\frac{1}{2}$

i. $-7\frac{3}{8} + +3\frac{1}{8}$

j. Alayne borrowed $87.50 from her mother. She repaid $75.00. She borrowed another $6.50. Then she paid back $19.00. Does she still owe her mother money? If so, how much?

Name _____ Date _____

Addition Properties

Name the property shown in each example.

a. $6 + 4 = 4 + 6$

b. $5 + 0 = 5$

c. $6 + (3 + 2) = (6 + 3) + 2$

d. $9 + (^{-}9) = 0$

e. $^{-}2.5 + ^{-}3.4 = ^{-}3.4 + ^{-}2.5$

f. $^{-}2.2 + 2.2 = 0$

g. $^{-}6.25 + 0 = ^{-}6.25$

h. $^{-}4.65 + (^{-}6.34 + ^{-}4.53) = (^{-}4.65 + ^{-}6.34) + ^{-}4.53$

Name _____ Date _____

Addition Properties

Match each equation with the property it shows.

a. $d + {}^{-}d = 0$ Associative Property

b. $a + 0 = a$ Commutative Property

c. $a + b = b + a$ Inverse Property

d. $(w + t) + {}^{-}c = w + (t + {}^{-}c)$ Zero Property

e. Use numbers to write an example of the zero property of addition. _____

f. Use numbers to write an example of the inverse property of addition. _____

g. Use numbers to write an example of the associative property of addition. _____

h. Use numbers to write an example of the commutative property of addition. _____

Name _____ **Date** _____

Subtracting Integers

Example: Subtract $^{-}6 - {}^{+}3$.

Step 1: Change the problem to addition.
$^{-}6 - {}^{+}3$ becomes $^{-}6 + {}^{-}3$

Step 2: Add.
$^{-}6 + {}^{-}3 = {}^{-}9$

a. $^{-}6 - {}^{+}2 =$ _____ b. $^{+}7 - {}^{-}3 =$ _____ c. $^{-}4 - {}^{+}8 =$ _____

d. $^{-}15 - {}^{+}6 =$ _____ e. $^{+}11 - {}^{-}2 =$ _____ f. $^{+}7 - {}^{-}14 =$ _____

g. $^{-}5 - {}^{+}16 =$ _____ h. $^{+}4 - {}^{-}5 =$ _____ i. $^{-}9 - {}^{+}6 =$ _____

j. $^{-}10 - {}^{+}20 =$ _____ k. $^{-}21 - {}^{+}14 =$ _____ l. $^{-}5 - {}^{+}8 =$ _____

m. $^{-}40 - {}^{+}30 =$ _____ n. $^{+}33 - {}^{-}65 =$ _____ o. $^{-}3 - 0 =$ _____

p. The highest point in the United States is on Mount McKinley at 20,320 feet above sea level. The lowest point is in Death Valley at 282 feet below sea level. What is the difference in elevation?

Name _____ **Date** _____

Subtracting Integers

a. $^{-}4 - {}^{-}2 =$ _____ b. $^{+}6 - {}^{+}4 =$ _____ c. $^{-}14 - {}^{-}8 =$ _____

d. $^{-}9 - {}^{-}10 =$ _____ e. $^{-}21 - {}^{-}13 =$ _____ f. $^{+}7 - {}^{+}2 =$ _____

g. $^{+}55 - {}^{+}42 =$ _____ h. $^{-}27 - {}^{-}81 =$ _____ i. $^{+}4 - {}^{+}3 =$ _____

j. $^{-}11 - {}^{-}4 =$ _____ k. $^{+}6 - {}^{+}7 =$ _____ l. $^{+}8 - {}^{+}2 =$ _____

m. $^{+}13 - 0 =$ _____ n. $^{-}3 - {}^{-}9 =$ _____ o. $^{-}6 - {}^{-}4 =$ _____

p. A town in Alaska has an average high temperature of 14°F. The average low temperature is $^{-}$23°F. What is the difference between the average high and low temperatures?

q. On their first play, the Vikings lost 8 yards. On their second play, they lost 12 yards. What is the difference in yardage between the first and second play?

Name _____ **Date** _____

Subtracting Rationals

Example: Subtract $^{+}6.2 - {}^{-}1.1$.

Step 1: Change the problem to addition.

$$\begin{array}{r} {}^{+}6.2 \\ -\ {}^{-}1.1 \end{array} \quad \text{becomes} \quad \begin{array}{r} {}^{+}6.2 \\ +\ {}^{+}1.1 \end{array}$$

Step 2: Add.

$$\begin{array}{r} {}^{+}6.2 \\ +\ {}^{+}1.1 \\ \hline {}^{+}7.3 \end{array}$$

a. $\begin{array}{r} {}^{+}7.3 \\ -\ {}^{-}9.2 \end{array}$

b. $\begin{array}{r} {}^{-}16.50 \\ -\ {}^{+}80.12 \end{array}$

c. $\begin{array}{r} {}^{+}205.8 \\ -\ {}^{-}614.1 \end{array}$

d. $\begin{array}{r} {}^{-}1.068 \\ -\ {}^{+}0.124 \end{array}$

e. $\begin{array}{r} {}^{+}46.00 \\ -\ {}^{+}22.50 \end{array}$

f. $\begin{array}{r} {}^{-}489.25 \\ -\ {}^{-}657.13 \end{array}$

g. $^{-}12.07 - {}^{+}22.2$

h. $^{-}9.8 - {}^{+}4.3$

i. $^{-}12.07 - {}^{-}22.2$

j. $^{+}9.8 - {}^{+}4.3$

Name _____ Date _____

Subtracting Rationals

a. $-\frac{3}{4} - +\frac{1}{4}$

b. $+\frac{7}{10} - -\frac{4}{10}$

c. $-\frac{5}{7} - -\frac{1}{7}$

d. $+\frac{4}{5} - +\frac{1}{5}$

e. $-\frac{3}{8} - +\frac{1}{4}$

f. $+\frac{2}{3} - +\frac{8}{9}$

g. $+2\frac{3}{4} - -1\frac{1}{4}$

h. $-6\frac{3}{5} - +3\frac{2}{5}$

i. $-4\frac{5}{12} - -4\frac{1}{12}$

j. Joshua needs a $12\frac{3}{4}$ foot long board. He has a 16 foot long board. How much must he cut off?

k. Today Maddy deposited $87.49 in her checking account and spent $152.27 from the same account. What was the change in her account balance today?

Name _____ **Date** _____

Multiplying Integers

Multiply.

a. $-4 \times -3 =$ _____ b. $+7 \times +4 =$ _____ c. $-10 \times -8 =$ _____

d. $+6 \times +10 =$ _____ e. $-2 \times -3 =$ _____ f. $+5 \times +2 =$ _____

g. $+5 \times +4 =$ _____ h. $-9 \times -8 =$ _____ i. $+3 \times +3 =$ _____

j. $-11 \times -5 =$ _____ k. $-6 \times -7 =$ _____ l. $+12 \times +2 =$ _____

m. $+13 \times 0 =$ _____ n. $-30 \times -9 =$ _____ o. $-1 \times -4 =$ _____

p. $-5 \times +20 =$ _____ q. $+40 \times -5 =$ _____ r. $-9 \times +6 =$ _____

s. $-10 \times +2 =$ _____ t. $-2 \times +4 =$ _____ u. $-5 \times +8 =$ _____

v. $-40 \times +3 =$ _____ w. $+3 \times -6 =$ _____ x. $-3 \times 100 =$ _____

Name _____ **Date** _____

Multiplying Integers

a. $^{-}6 \times {}^{-}2 =$ _____ b. $^{+}20 \times {}^{+}5 =$ _____ c. $^{-}10 \times {}^{+}3 =$ _____

d. $^{+}7 \times 0 =$ _____ e. $^{-}3 \times {}^{+}3 =$ _____ f. $^{+}9 \times {}^{-}1 =$ _____

g. $^{+}6 \times {}^{-}6 =$ _____ h. $^{-}7 \times {}^{-}6 =$ _____ i. $^{+}5 \times {}^{+}8 =$ _____

j. For 3 days in a row, the temperature has risen 12 degrees each day. How much has the temperature changed in all?

k. The last stanza of "Sir Patrick Spense" by Elizabeth Halkett reads:

"Half ore, half ore to Aberdour,
It's fifty fathoms deep,
And there lies good Sir Patrick Spense,
Wi' the Scots lords at his feet."

A fathom is 6 feet, and they were 50 fathoms deep. What integer represents how deep they were?

Name _____ Date _____

Multiplying Rationals

Multiply. Write your answer in lowest terms.

a. $^{-}0.1 \times {}^{+}6$

b. $^{-}0.3 \times {}^{-}1.2$

c. $^{-}8 \times {}^{-}0.4$

d. $^{-}2.5 \times {}^{+}4$

e. $^{+}2 \times {}^{+}4.2$

f. $^{+}0.11 \times {}^{-}9$

g. $\begin{array}{r} {}^{+}6.5 \\ \times \quad {}^{-}4 \\ \hline \end{array}$

h. $\begin{array}{r} {}^{-}2.2 \\ \times \quad {}^{-}7 \\ \hline \end{array}$

i. $\begin{array}{r} {}^{-}1.3 \\ \times \quad {}^{+}9 \\ \hline \end{array}$

j. $+\frac{1}{4} \times -\frac{1}{3}$

k. $-\frac{3}{8} \times -\frac{1}{2}$

l. $-\frac{2}{5} \times -\frac{1}{2}$

m. $-\frac{5}{6} \times -\frac{1}{2}$

n. $-\frac{2}{9} \times -\frac{1}{3}$

o. $-\frac{4}{5} \times -\frac{1}{8}$

Name _____ Date _____

Multiplying Rationals

a. -1.2×-2

b. $+20 \times +0.5$

c. $-0.8 \times +1.1$

d. $+4.2 \times +3$

e. $-0.07 \times +8$

f. $+0.9 \times -0.1$

g. $+\frac{1}{3} \times -\frac{3}{4}$

h. $-\frac{6}{7} \times -\frac{1}{2}$

i. $-\frac{2}{9} \times +3$

j. A stock showed a change of $-\frac{1}{8}$ point each day for three days. What was the total change over three days?

k. The temperature dropped an average of 2.4° F an hour for 6 hours. Write a rational number to express the total change in temperature.

l. A hamburger can lose $\frac{2}{5}$ of its weight when cooked. At this rate, how much will a $\frac{1}{2}$ pound hamburger lose when it is cooked?

Name _____ Date _____

Multiplication Properties

Name the property illustrated.

a. $7 \times (\frac{1}{7}) = 1$

b. $p \times 4 = 4 \times p$

c. $(-9 \times -7) \times -2 = -9 \times (-7 \times -2)$

d. $16 \times 0 = 0$

e. $1 \times k = k$

Give an example for each of the following properties.

Example: Commutative Property of Addition: $3 + 2 = 2 + 3$

f. Commutative Property of Multiplication

g. Identity Property of Multiplication

h. Inverse Property of Multiplication

i. Associative Property of Multiplication

j. Zero Property of Multiplication

Name _____ Date _____

Multiplication Properties

Name the property shown in each example.

a. $6 \times 1 = 6$

b. $7 \times 2 = 2 \times 7$

c. $6 \times (\frac{1}{6}) = 1$

d. $(6 \times 3) \times 4 = 6 \times (3 \times 4)$

e. $0 \times 8 = 0$

Name the inverse for each given number.

f. $\frac{1}{8}$ g. 6 h. $\frac{3}{4}$

i. The inverse of a number is also called its _____.

j. Inverse numbers always have a product of _____.

k. The product of zero and any number is _____.

Name _____ Date _____

The Distributive Property

Use the distributive property and mental math to multiply.

Example: 4×82

Step 1: Think.	*Step 2: Multiply.*	*Step 3: Add.*
4×82	$(4 \times 80) + (4 \times 2)$	$320 + 8$
is the same as	$320 + 8$	328
$(4 \times 80) + (4 \times 2)$		

a. 6×45

b. 3×-24

c. 7×35

d. 61×-8

e. 58×4

f. 16×6

g. 18×2

h. -22×6

i. 102×3

j. 208×4

k. 320×2

l. 8×-101

Name _____ **Date** _____

The Distributive Property

Use the distributive property.

Example: $(7 \times 2.4) + (3 \times 2.4) = (7 + 3) \times 2.4 = (10) \times 2.4 = 24$

a. $(2.4 \times 9) + (0.6 \times 9)$

b. $(43 \times {}^{-}6) - (23 \times {}^{-}6)$

c. $(2\frac{1}{2} \times 8) + (3\frac{1}{2} \times 8)$

d. $({}^{-}2.2 \times {}^{-}3) - ({}^{-}1.3 \times {}^{-}3)$

Solve each problem in two ways.

	Add, then multiply.	Multiply, then add.
Example: $6 \times ({}^{-}8 + 3)$	$6 \times ({}^{-}5) = {}^{-}30$	$(6 \times {}^{-}8) + (6 \times 3) = ({}^{-}48) + (18) = {}^{-}30$

e. $9 \times (9 + 6)$

f. $10 \times ({}^{-}3 + {}^{-}2)$

g. $7 \times ({}^{-}3 - {}^{-}7)$

Name _____ Date _____

Dividing Rationals

Divide. Write your answer in lowest terms.

a. $-80 \div -4$

b. $+18 \div -3$

c. $-42 \div +6$

d. $-63 \div +7$

e. $+0.2 \overline{)-6}$

f. $-0.3 \overline{)-1.5}$

g. $+1.2 \overline{)+14.4}$

h. $-5 \overline{)+2.5}$

i. $+\frac{1}{4} \div -\frac{1}{2}$

j. $+\frac{3}{8} \div -\frac{3}{4}$

k. $-\frac{2}{5} \div -\frac{10}{11}$

l. $-\frac{5}{6} \div +\frac{1}{2}$

m. $+\frac{2}{3} \div +\frac{1}{3}$

n. $-\frac{4}{7} \div -\frac{2}{3}$

Name _____ Date _____

Dividing Rationals

Divide the following rational numbers.

a. $54 \div -3$

b. $-180 \div 15$

c. $-0.28 \overline{)-0.658}$

d. $-2\frac{5}{8} \div \frac{7}{10}$

e. The Centerville Snails football team lost 24 yards in 3 plays. What was their average gain per play?

f. Kyle pays a monthly fee for his cell phone. For six months, the total charges were $325.80. What is his monthly fee?

Name _____ Date _____

Variables and Expressions

Give an example for each of the following:

a. expression

b. variable

c. numeric expression

d. constant

Write a numeric or algebraic expression for the following:

e. 12 increased by 9

f. 7 less than x

g. 3 more than y

h. The product of 8 and 64

i. 63 divided by k

j. c plus 12

k. 9 times n

Name _____ Date _____

Variables and Expressions

Word expression	Numeric or Algebraic expression
Example: price times number of bags	$p \times b$
a. a number plus 3	
b. 350 divided by 55	
c. 12 minus a number	
d. 9 times a number	
e. the number of students	
f. a distance divided by a time	
g. There are 10 CDs in a set. Write an expression for how many CDs in 8 sets.	
h. There were seven horses on the farm. Two more came to the farm. Write an expression for the total number of horses.	
i. A herd of goats eats 21 bales of hay each month. Write an expression to show the number of bales of hay they eat in m months.	

Name _____ Date _____

Evaluate and Simplify

Evaluate each numeric expression.

a. 15×5

b. $45 \div 15$

c. $22 + 32$

d. $33 - 14$

e. $12 + 6 - 3$

f. 8×6

Evaluate each expression for the given variable value.

g. $m + 7$ when $m = 6$

h. $4v$ when $v = 11$

i. $p - 5$ when $p = 9$

j. $x \div 7$ when $x = 35$

k. $7r$ when $r = 7$

l. $8 + y$ when $y = 14$

m. $24 \div h$ when $h = 6$

n. $12 - d$ when $d = 15$

Name _____ Date _____

Evaluate and Simplify

List the terms in each expression.
Example: $4m - 6$ The terms are $4m$ and 6.

a. $a + 6$

b. $2m - 5n$

c. $k + m - p$

d. $u - k$

e. $15 - 33c$

f. $5{,}280 - 1{,}760$

Simplify each expression by combining the like terms.

g. $5m + 3m$

h. $3x - x$

i. $7c - 4c$

j. $8n + 6n$

k. $4a - 2a$

l. $t + 7t - 2t$

m. Penny brought 5 boxes of cookies to the school social. Three boxes were used for the chaperones. If c represents the number of cookies in each box, write an expression for the number of cookies not used for the chaperones. Simplify the expression.

Name _____ Date _____

Order of Operations

Use the correct order of operations to evaluate each expression.

Remember:
1. Do operations inside **parentheses.**
2. Do **multiplication and division** in order from left to right.
3. Do **addition and subtraction** in order from left to right.

a. $8 + 4 - 7$

b. $0.4 + 0.3 \times 5$

c. $14 + (16 - 7)$

d. $6 \times 4 \div 4$

e. $6 \times 4 + 3 \times 8$

f. $2.1 + 0.9 \times 6$

g. $(15 - 7) \times (2 + 8)$

h. $3 \times (5 - 3)$

i. $15 - 7 \times 2 + 8$

j. $5 + 7 \times 3 - (2 + 4)$

Name _____ Date _____

Order of Operations

Use the correct order of operations to evaluate each expression.

Remember:
1. Do operations inside **parentheses.**
2. Do **multiplication and division** in order from left to right.
3. Do **addition and subtraction** in order from left to right.

a. $12 + 8 \div (7 + 3)$

b. $m + 6 \times (8m - 5m)$

c. $2p - 7p - 1 \times (7p - 3p)$

d. $3k - k + 4k - 9$

e. $(^{+}5 + ^{-}9) \times (15 - 7)$

f. $2a \times 3 + 6$

g. $6z + 6 \times (7z - 2z)$

h. $7v - 2v + 3 \times (9v + v)$

i. $14a \div 7a + 6a \times 2 + 9$

j. $(25 + 5) \div 6 + 3n - n$

Name _____ Date _____

Algebraic Equations

Write an algebraic equation for the following situations.

Example: Missy's age minus 3 years is 12. $m - 3 = 12$

a. Justin's age plus 8 years is 12.

b. Karla's weight + 15 pounds is 98.

c. The number of gallons of gas in the tank minus 12 gallons is 4 gallons.

d. The length of a song multiplied by being played 8 times is 48 minutes.

Tell if each equation is true for the given value.

e. $m + 7 = 12$ when $m = 8$

f. $8f = 48$ when $f = 6$

Name _____ Date _____

Algebraic Equations

Evaluate the following equations.

a. $6e = 72$ when $e = 12$

b. $u - 15 = 13$ when $u = 38$

c. $2m + 6 = 16$ when $m = 5$

d. $4d - 7 = 5$ when $d = 3$

Solve each equation for the variable.

Example: $28 + 50 = f$
$78 = f$ $f = 78$

e. $p = 33 - 17$

f. $k = 45 + 23$

g. $4 \times 15 = a$

h. $^{-}6 + {}^{-}19 = m$

i. $0.15 + {}^{-}2.6 = g$

j. $h = {}^{-}\frac{1}{2} + {}^{+}\frac{3}{4}$

Name _____ Date _____

Properties of Equality

Verify the addition property by adding the same value to each side of the equation.

Example: $^{-}15 - 22 = {}^{-}37$: Add 7 to each side.

$$(^{-}15 - 22) + 7 = {}^{-}37 + 7$$
$$(^{-}37) + 7 = {}^{-}30$$
$$^{-}30 = {}^{-}30$$

a. $6 + 3 = 9$: Add 15 to each side.

b. $^{-}9 + {}^{-}6 = {}^{-}15$: Add 25 to each side.

Verify the subtraction property by subtracting the same value from each side of the equation.

c. $23 - 19 = 4$: Subtract 15 from each side.

d. $^{-}23 - 9 = {}^{-}32$: Subtract 6 from both sides.

Name _____ Date _____

Properties of Equality

Verify the multiplication property by multiplying each side of the equation by the same value.

Example: $10 - 22 = -12$: Multiply each side by 2.

$$(10 - 22) \times 2 = -12 \times 2$$
$$(-12) \times 2 = -24$$
$$-24 = -24$$

a. $7 + 9 = 16$: Multiply each side by 4.

b. $6 - 8 = -2$: Multiply each side by 7.

Verify the division property by dividing each side of the equation by the same value.

c. $6 + 8 = 14$: Divide each side by 7.

d. $0.51 + 1.23 = 1.74$: Divide each side by 3.

Name _____ Date _____

Addition Equations

Solve and check each equation.

Example: $d + 16 = 28$

Subtract 16 from each side of the equation.

$$d + 16 - 16 = 28 - 16$$
$$d = 12$$

Check:

Replace the variable (d) with the solution (12).

$$d + 16 = 28$$
$$(12) + 16 = 28$$
$$28 = 28$$

a. $m + 5 = 17$ Check:

b. $a + 27 = 15$ Check:

c. $b + 1.4 = 6.7$ Check:

d. $p + \frac{1}{10} = \frac{4}{5}$ Check:

e. $w + 33 = 42$ Check:

Name _____ **Date** _____

Addition Equations

Write and solve an algebraic equation for each situation.

a. A number increased by $^{-}7$ is 33. What is the number?

b. 18 added to a number is 97. What is the number?

c. Jim had some songs on his mp3 player. Then he put 15 more on it, for a total of 52 songs. How many did he have at first?

d. On Monday, Macy opened a box of CDs and burned some. She burned 9 more a few days later, and finished the box. If there were 36 CDs in the box, how many did she burn on Monday?

e. Last week, George sold 6 paintings on his website. He also sold some at an art show, for a total of 15 sales. How many paintings did he sell at the art show?

Name _____ **Date** _____

Subtraction Equations

Solve and check each equation.

Example: $x - 2 = 8$ Check:

Add 2 to each side of the equation.

$$x - 2 + 2 = 8 + 2$$
$$x = 10$$

Replace the variable (x) with the solution (10).

$$x - 2 = 8$$
$$(10) - 2 = 8$$
$$8 = 8$$

a. $m - 29 = 52$ Check:

b. $d - (^{-}33) = {}^{-}5$ Check:

c. $k - 0.58 = 2.44$ Check:

d. $x - 2\frac{1}{3} = 9\frac{5}{6}$ Check:

e. $f - 23 = {}^{-}14$ Check:

Name _____ **Date** _____

Subtraction Equations

Write and solve an algebraic equation for each situation.

a. If you subtract 8 from a number, the result is 72. What is the number?

b. Toni sold 15 digital cameras this week. There were still 36 cameras in stock at the end of the week. How many did he have at the beginning of the week?

c. A number decreased by 45 equals 12. What is the number?

d. A rope was cut to make a 12-foot section. This left 38 feet of rope. How long was the original rope?

e. Amber gave her science teacher 18 butterflies from her collection. She has 57 butterflies left. How many were in her collection originally?

Name _____ Date _____

Multiplication Equations

Solve and check each equation.

Example: $3y = 21$

Divide each side of the equation by 3.

$$\frac{\cancel{3}y}{\cancel{3}} = \frac{21}{3}$$
$$y = 7$$

Check:

Replace the variable (y) with the solution (7).

$$3y = 21$$
$$3(7) = 21$$
$$21 = 21$$

a. $25h = 125$ Check:

b. $-7p = 56$ Check:

c. $0.6d = 84$ Check:

d. $8x = 336$ Check:

e. $6z = -96$ Check:

f. $-21v = -147$ Check:

Name _____ **Date** _____

Multiplication Equations

Write and solve an algebraic equation for each situation.

a. A number multiplied by 5 is 40. What is the number?

b. A hot pretzel stand sells pretzels sticks in bags of 6 sticks each. How many bags can they fill with 84 pretzel sticks?

c. Teia worked 35 hours one week. If she earned $218.75 what was her hourly wage?

d. Three-eighths of a number is 54. What is the number?

e. Mrs. Meier brought enough cookies so that each student could have three. How many students are there if Mrs. Meier brought 90 cookies?

Name _____ Date _____

Division Equations

Solve and check each equation.

Example: $y \div 3 = 9$

Multiply each side of the equation by 3.

$$y \div 3 \times 3 = 9 \times 3$$
$$y = 27$$

Check:

Replace the variable (y) with the solution (27).

$$y \div 3 = 9$$
$$(27) \div 3 = 9$$
$$9 = 9$$

a. $m \div 9 = 12$

Check:

b. $\frac{p}{5} = 7$

Check:

c. $\frac{g}{15} = -8$

Check:

d. $u \div 99 = 0$

Check:

e. $\frac{40}{n} = -5$

Check:

Name _____ **Date** _____

Division Equations

Write and solve an algebraic equation for each situation.

a. A number divided by 16 equals 7. What is the number?

b. 18 divided by some number equals 4. What is the number?

c. Leon won some money and divided it evenly between his 2 children. If each child received $125,000, how much did Leon win?

d. Ari had some camels. He divided them equally among his 3 sons. If each son received 18 camels, how many did Ari begin with?

e. Michelle has 24 rabbits. If she fills all of her cages with the same number of rabbits, there will be 2 in each cage. How many cages does she have?

Name _____ Date _____

Multi-Step Equations

Solve and check each equation.

Example: $3x + 12 = 48$

Subtract 12 from each side of the equation.

$$3x + 12 - 12 = 48 - 12$$
$$3x = 36$$

Divide each side of the equation by 3.

$$\frac{3x}{3} = \frac{36}{3}$$
$$x = 12$$

Check:

Replace the variable (x) with the solution (12).

$$3x + 12 = 48$$
$$3(12) + 12 = 48$$
$$36 + 12 = 48$$
$$48 = 48$$

a. $4k - 7 = 21$ Check:

b. $2(m - 15) = 10$ Check:

c. $\frac{1}{3}n - \frac{2}{3} = 1\frac{1}{3}$ Check:

d. $-5x + 8 = -57$ Check:

e. $9(p + 9) = 108$ Check:

Name _____ Date _____

Multi-Step Equations

Solve and check each equation.

a. $-5(r + 14) = -15$ Check:

b. $\frac{(k + 13)}{2} = 18$ Check:

c. $-6(v - 18) = 42$ Check:

Write and solve an algebraic equation for each situation.

d. Nine times a number is increased by 123 to equal 168. What is the number?

e. Kate has some balloons, then buys a bag with 72 more. She divides them evenly among 10 people. If each person gets 11 balloons, how many did Kate start with?

Name _____ Date _____

Inequalities

Write an inequality for each of the statements.

Example: The age of students in the dance class is 14 or older.
$a \geq 14$

a. A junior equestrian must be under 18 years old.

b. The seating capacity of Wrigley Field is 41,118 or less.

c. The animal shelter wanted to raise at least $4,000.

d. The class was limited to no more than 6 people.

e. The selling price of a sound mixer is at least $3,500.

f. You must be at least 54 inches tall to ride a roller coaster.

g. To ride the flying elephants, you must weigh less than 70 pounds.

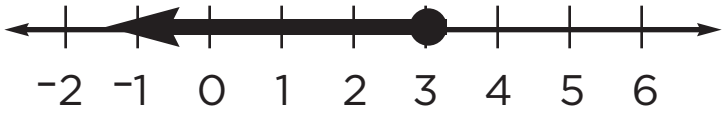
h. The glass elevator can hold up to 22 people.

Name _____ Date _____

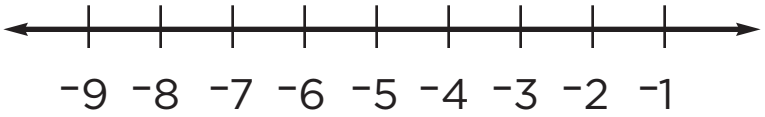
Inequalities

Graph the solution sets on the number line.

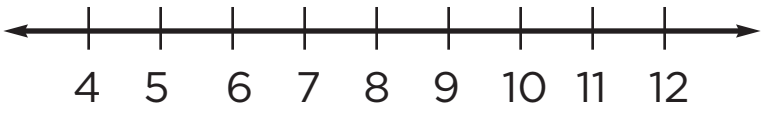
Example: $x \leq 3$



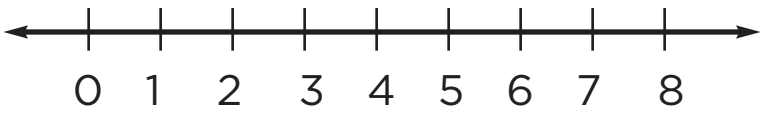
a. $m < -5$



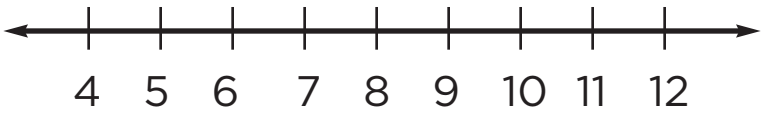
b. $p > 7$



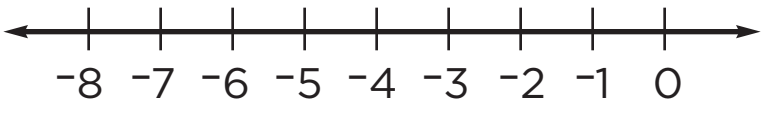
c. $n \geq 4$



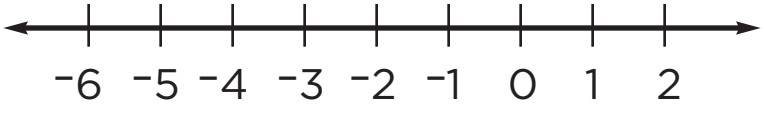
d. $t < 8$



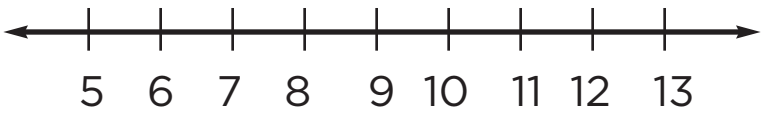
e. $y \leq -3$



f. y is greater than -4



g. y is less than 11



Name _____ Date _____

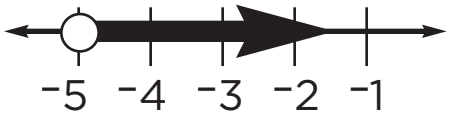
Addition and Subtraction Inequalities

Solve each inequality and graph your solution on the number line.

Example: $x + 9 > 4$

$x + 9 - 9 > 4 - 9$

$x > -5$



a. $m + 3 \geq 11$

b. $n + 23 \leq 28$

c. $z - 7 > 15$

d. $h - 18 < 18$

e. $9 + c \leq 4$

f. $12 + d > 19$

Name _____ Date _____

Addition and Subtraction Inequalities

Solve each inequality and graph your solution on the number line.

a. $t + 12 < 25$

b. $w - 41 \geq 16$

c. $d - 65 < -33$

d. $z + 53 \geq 35$

e. $14 + v \leq 35$

f. $52 + r > 43$

Name _____ Date _____

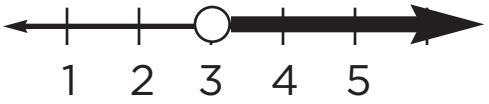
Multiplication and Division Inequalities

Solve each inequality and graph your solution on the number line.

Example: $9x > 27$

$\frac{9x}{9} > \frac{27}{9}$

$x > 3$



a. $8m > 96$

b. $12p \leq 108$

c. $\frac{n}{-4} < 8$

d. $7g \geq 28$

e. $\frac{m}{6} < 2$

f. $-15h \leq 75$

Name _____ Date _____

Multiplication and Division Inequalities

Solve each inequality and graph your solution on the number line.

a. $\frac{r}{3} \leq 4$

b. $-6w > 36$

c. $\frac{a}{-3} \geq -2$

d. $5p < 45$

e. $12z > -72$

f. $0.5k \geq -2.5$

Answers

Integers

Page 3: a. −7; b. +2,608; c. −25; d. +3; e. +15; f. +10; g. Answers will vary.; h. Answers will vary.

Page 4: a. −5; b. −11; c. +45; d. −33; e. No; f. Yes; g. Yes; h. 5; i. +2

Rationals

Page 5: a. Rational; b. Irrational; c. Rational; d. Rational; e. Irrational; f. Rational; g. Rational; h. Rational; i. Real, rational, integer, whole, natural; j. Real, rational, integer; k. Real, irrational; l. Real, rational; m. Yes; n. No; o. No; p. Yes; q. Yes; r. Yes

Page 6: a. Rational; b. Rational; c. Irrational; d. Rational; e. Irrational; f. Rational; g. Rational; h. Rational; i. Real, rational, integer, whole, natural; j. Real, irrational; k. Real, rational, integer; l. Real, rational; m. Real, rational, integer, whole; n. Real, rational; o. Real, irrational

Comparing Numbers

Page 7: a. −2; b. 0; c. 3; d. −6, −4, 0, 5; e. −5, 1, 3, 4; f. −2, −1, 2, 9; g. <; h. <; i. <; j. <; k. <; l. >; m. >; n. < o. =

Page 8: a. larger; b. −44, −34, −23, −15; c. −3, +1, +2; d. −3°F; e. −8°F, −5°F, −3°F, 0°F; f. >; g. <; h. =; i. <; j. >; k. >; l. 8; m. −2; n. 15; o. −6; p. −18; q. −15

Absolute Value

Page 9: a. 6; b. 45; c. 360; d. 39; e. 456; f. 375; g. 56; h. 83; i. 44; j. 11; k. 6; l. 22; m. 15; n. 3; o. 4; p. 2; q. 2; r. 0

Page 10: a. 1.5; b. 3.7; c. 2/7; d. 0.568; e. 18.2; f. 9.7; g. 5/6; h. 5/6; i. 4.4; j. 8.8; k. 1.5; l. 1 1/4; m. 1/4; n. 1 1/4; o. 1/4; p. 5.2; q. 3; r. 5.3

Addition: Like Integers

Page 11: a. −8; b. +9; c. −17; d. −10; e. −19; f. +9; g. +26; h. −24; i. +26; j. +4; k. −9; l. +9; m. −16; n. −13; o. −8; p. +8; q. −13; r. −65; s. −93; t. +109; u. −70

Page 12: a. -84; b. $+647$; c. -951; d. -879; e. -430; f. $+453$; g. $+11{,}249 + +9{,}071 = +20{,}320$, 20,320 feet above sea level; h. $-608 + -992 = -1{,}600$, 1,600 m deep; i. $+215 + +441 = +656$, $656

Addition: Unlike Integers

Page 13: a. -5; b. $+2$; c. $+5$; d. -6; e. $+4$; f. -9; g. $+6$; h. -1; i. -1; j. $+2$; k. $+1$; l. -7; m. $+7$; n. $+7$; o. $+5$; p. $+3$; q. 0; r. $+3$; s. $+32$; t. -16; u. -25

Page 14: a. -18; b. $+36$; c. 0; d. -52; e. $+37$; f. -87;
g. $+3{,}686 + -2{,}793 = +893$, $893 net profit;
h. $+37 + +18 = +55$, 55 yard gain; i. $-8 + +6 = -2$, 2 pound loss

Adding Rationals

Page 15: a. $+13.51$; b. -10.6; c. $+1.45$; d. $+3.00$; e. -12.34; f. -3.01;
g. $+7\ 3/4$; h. $-10\ 1/2$; i. $-1\ 1/8$; j. $+13.4°$F; k. 61 1/6 pounds of corn

Page 16: a. $+8.29$; b. -10.0; c. $+2.20$; d. $+10.82$; e. -10.99; f. $+1.09$;
g. $+8\ 1/2$; h. $-6\ 5/6$; i. $-4\ 1/4$; j. No, she does not owe her mother any more money.

Addition Properties

Page 17: a. Commutative Property; b. Zero Property; c. Associative Property; d. Inverse Property; e. Commutative Property; f. Inverse Property; g. Zero Property; h. Associative Property

Page 18: a. Inverse Property; b. Zero Property; c. Commutative Property; d. Associative Property; e-h. Answers may vary, check for understanding

Subtracting Integers

Page 19: a. -8; b. $+10$; c. -12; d. -21; e. $+13$; f. $+21$; g. -21; h. $+9$; i. -15; j. -30; k. -35; l. -13; m. -70; n. $+98$; o. -3; p. There is a 20,602 foot elevation difference.

Page 20: a. -2; b. $+2$; c. -6; d. $+1$; e. -8; f. $+5$; g. $+13$; h. $+54$; i. $+1$; j. -7; k. -1; l. $+6$; m. $+13$; n. $+6$; o. -2; p. 37 degrees difference;
q. 4 yard difference

Subtracting Rationals

Page 21: a. +16.5; b. −96.62; c. +819.9; d. −1.192; e. +23.50; f. +167.88; g. −34.27; h. −14.1; i. +10.13; j. +5.5

Page 22: a. −1; b. +1 1/10; c. −4/7; d. +3/5; e. −5/8; f. −2/9; g. +4; h. −10; i. −1/3; j. He must cut off 3 1/4 feet.; k. The balance went down by $64.78.

Multiplying Integers

Page 23: a. +12; b. +28; c. +80; d. +60; e. +6; f. +10; g. +20; h. +72; i. +9; j. +55; k. +42; l. +24; m. 0; n. +270; o. +4; p. −100; q. −200; r. −54; s. −20; t. −8; u. −40; v. −120; w. −18; x. −300

Page 24: a. +12; b. +100; c. −30; d. 0; e. −9; f. −9; g. −36; h. +42; i. +40; j. The temperature rose by 36 degrees.; k. They were 300 feet deep.

Multiplying Rationals

Page 25: a. −0.6; b. +0.36; c. +3.2; d. −10.0; e. +8.4; f. −0.99; g. −26.0; h. +15.4; i. −11.7; j. −1/12; k. +3/16; l. +1/5; m. +5/12; n. +2/27; o. +1/10

Page 26: a. +2.4; b. +10.0; c. −0.88; d. +12.6; e. −0.56; f. −0.09; g. −1/4; h. +3/7; i. −2/3; j. The stock changed by −3/8 points. (Or dropped 3/8 points); k. −14.4; l. The hamburger will lose 1/5 of a pound.

Multiplication Properties

Page 27: a. Inverse Property; b. Commutative Property; c. Associative Property; d. Zero Property; e. Identity Property; f-j. Answers may vary. Check student understanding.

Page 28: a. Identity Property; b. Commutative Property; c. Inverse Property; d. Associative Property; e. Zero Property; f. 8; g. 1/6; h. 4/3; i. reciprocal; j. 1; k. 0

The Distributive Property

Page 29: a. 270; b. −72; c. 245; d. −488; e. 232; f. 96; g. 36; h. −132; i. 306; j. 832; k. 640; l. −808

Page 30: a. 27; b. −120; c. 48; d. 2.7; e. 135; f. −50; g. 28

Dividing Rationals

Page 31: a. 20; b. −6; c. −7; d. −9; e. −30; f. 5; g. 12; h. −0.5; i. −1/2; j. −1/2; k. 11/25; l. −1 2/3; m. 2; n. 6/7

Page 32: a. −18; b. −12; c. 2.35; d. −3 3/4; e. −8 yards per play; f. $54.30

Variables and Expressions

Page 33: a-d. Answers may vary, check for student understanding; e. $12 + 9$; f. $x - 7$; g. $y + 3$; h. 8×64; i. $63 \div k$; j. $c + 12$; k. $9n$

Page 34: a. $n + 3$; b. $350 \div 55$; c. $12 - n$; d. $9n$; e. s; f. $d \div t$; g. 8×10; h. $7 + 2$; i. $21m$

Evaluate and Simplify

Page 35: a. 75; b. 3; c. 54; d. 19; e. 15; f. 48; g. 13; h. 44; i. 4; j. 5; k. 49; l. 22; m. 4; n. −3

Page 36: a. a and 6; b. $2m$ and $5n$; c. k, m, and p ; d. u and k; e. 15 and $33c$; f. 5,280, and 1,760; g. $8m$; h. $2x$; i. $3c$; j. $14n$; k. $2a$; l. $6t$; m. $5c - 3c = 2c$

Order of Operations

Page 37: a. 5; b. 1.9; c. 23; d. 6; e. 48; f. 7.5; g. 80; h. 6; i. 9; j. 20

Page 38: a. 12.8; b. $19m$; c. $-9p$; d. $6k - 9$; e. −32; f. $6a + 6$; g. 362; h. $35v$; i. $12a + 11$; j. $5 + 2n$

Algebraic Expressions

Page 39: a. $j + 8 = 12$; b. $k + 15 = 98$; c. $g - 12 = 4$; d. $4s = 48$; e. Not true; f. True

Page 40: a. True; b. Not true; c. True; d. True; e. $p = 16$; f. $k = 68$; g. $a = 60$; h. $m = -25$; i. $g = -2.45$; j. $h = 1/4$

Properties of Equality

Page 41: a-d. Check for student understanding.

Page 42: a-d. Check for student understanding.

Addition Equations

Page 43: a. $m = 12$; b. $a = -12$; c. $b = 5.3$; d. $p = 7/10$; e. $w = 9$

Page 44: a. $n + -7 = 33$: $n = 40$; b. $n + 18 = 97$: $n = 79$; c. $s + 15 = 52$: $s = 37$ songs at first; d. $c + 9 = 36$: $c = 27$ songs she burned on Monday; e. $6 + p = 15$: $p = 9$ paintings sold at the art show.

Subtraction Equations

Page 45: a. $m = 81$; b. $d = -38$; c. $k = 3.02$; d. $x = 12\ 1/6$; e. $f = 9$

Page 46: a. $n - 8 = 72$: $n = 80$; b. $c - 15 = 36$: $c = 51$ cameras at the beginning of the week; c. $n - 45 = 12$: $n = 57$; d. $r - 12 = 38$: $r = 50$ feet on the original rope; e. $c - 18 = 57$: $c = 75$ butterflies in the original collection

Multiplication Equations

Page 47: a. $h = 5$; b. $p = -8$; c. $d = 140$; d. $x = 42$; e. $z = -16$; f. $v = 7$

Page 48: a. $5n = 40$: $n = 8$; b. $6p = 84$: $p = 14$ bags of pretzels; c. $35h = \$218.75$: $h = \$6.25$ per hour; d. $(3/8)n = 54$: $n = 144$; e. $3s = 90$: $s = 30$ students

Division Equations

Page 49: a. $m = 108$; b. $p = 35$; c. $g = -120$; d. $u = 0$; e. $n = -8$

Page 50: a. $n \div 16 = 7$: $n = 112$; b. $18 \div n = 4$: $n = 4.5$; c. $s \div 2 = \$125{,}000$: $s = \$250{,}000$ that Leon won; d. $c \div 3 = 18$: $c = 54$ camels; e. $24 \div c = 2$: $c = 12$ cages

Multi-Step Equations

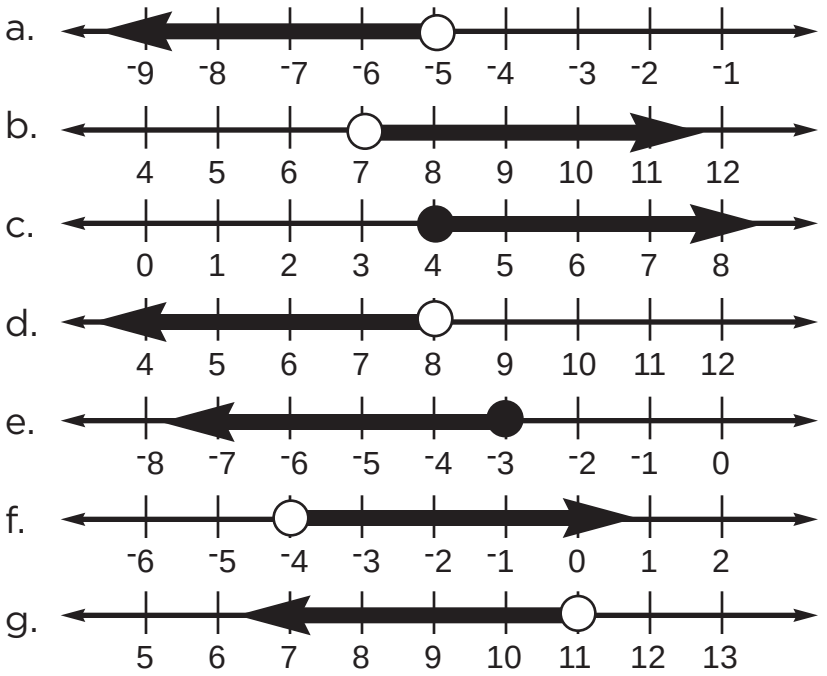
Page 51: a. $k = 7$; b. $m = 20$; c. $n = 6$; d. $x = 13$; e. $p = 3$

Page 52: a. $r = -11$; b. $k = 23$; c. $v = 11$; d. $9n + 123 = 168$: $n = 5$; e. $(s + 72) \div 10 = 11$: $b = 38$ balloons to start

Inequalities

Page 53: a. $j < 18$; b. $s \leq 41{,}118$; c. $m \geq 4{,}000$; d. $c \leq 6$; e. $p \geq 3{,}500$; f. $t \geq 54$; g. $e < 70$; h. $p \leq 22$

Page 54:



Addition and Subtraction Inequalities

Page 55: a-f. Check graphs a. $m \geq 8$; b. $n \leq 5$; c. $z > 22$; d. $h < 36$; e. $c \leq -5$; f. $d > 7$

Page 56: a-f. Check graphs a. $t < 13$; b. $w \geq 57$; c. $d < 32$; d. $z \geq -18$; e. $v \leq 21$; f. $r > -9$

Multiplication and Division Inequalities

Page 57: a-f. Check graphs a. $m > 12$; b. $p \leq 9$; c. $n > -32$; d. $g \geq 4$; e. $m < 12$; f. $h \geq -5$

Page 58: a-f. Check graphs a. $r \leq 12$; b. $w < -6$; c. $a \leq 6$; d. $p < 9$; e. $z > -6$; f. $k \geq -5$