Unit 1

I can describe real-world situations in which opposite quantities add together to equal zero.

D

Which situation results in a final value of zero?

A The temperature after a decrease of 5°F from a temperature of −5°F.

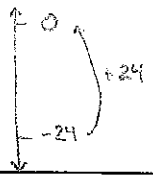
B The height of an airplane after taking off from ground level and rising 1,000 feet.

C The amount of money received in change after making a $10 purchase with a $20 bill. 20−10=10

(D) The distance above sea level after increasing 24 meters from a depth of 24 meters below sea level.

24 + (−24) = 0

PROVE IT:



B

The initial balance of a savings account was $275. After which transactions will the balance of the savings account be the same as the initial balance?

A a withdrawal of $232 followed by a deposit of $132 −232 + 132 = −100

(B) a deposit of $278 followed by a withdrawal of $278

C a withdrawal of $115 followed by a deposit of $312 −115 + 312 = 197

D a deposit of $205 followed by a withdrawal of $317 205 − 317 = −112

PROVE IT: 278 − 278 = 0

A

Altitude above sea level is given in positive values and below sea level is given in negative values. Which situation describes a hiker in Death Valley stopping at an altitude of 0 feet?

(A) The hiker starts at −10 feet then increases altitude by 10 feet. −10 + 10 = 0

B The hiker starts at −10 feet then decreases altitude by 10 feet. −10 − 10 = −20

C The hiker starts at 10 feet then increases altitude by 10 feet. 10 + 10 = 20

D The hiker starts at 0 feet then decreases altitude by 10 feet. 0 − 10 = −10

PROVE IT: −10 + 10 = 0

I can explain that subtraction of rational numbers as the addition of the additive inverse.

D

Which expression has the same value as $59.2 - 84.7$?

A $84.7 - 59.2$

B $-84.7 - (-59.2)$

C $59.2 - (-84.7)$

D $59.2 + (-84.7)$

$59.2 + (-84.7)$

A

Which expression is equivalent to $4 - (-7)$?

A $7 + 4$

B $4 - 7$

C $-7 - 4$

D $-4 + 7$

$4 + 7$

Commutative Property

I can use a number line to demonstrate that the distance between two numbers is the absolute value of the difference between those numbers.

Kailyn
Alexa

D

At midnight, the temperature was $-8°F$. At noon, the temperature was $23°F$.

Which expression represents the increase in temperature?

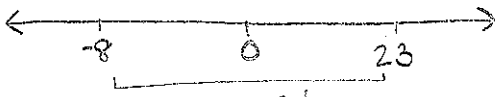
distance

A $-8 - 23$ -31

B $|-8| - 23$ -15

C $-8 - |23|$ -31

D $|-8 - 23|$ $|-31| = 31$



$|-8-23|$

$|-8+(-23)|$

$|-31| = 31$

I can convert rational numbers to decimal numbers.
I can recognize a terminating or repeating decimal.

What is the decimal equivalent of the fraction $\frac{8}{15}$?

A 0.53

B $0.5\overline{3}$

C $0.\overline{53}$

D 0.533

0.53333...

$0.5\overline{3}$

B

What is the decimal equivalent of $\frac{7}{8}$?

A 0.780

B 0.870

C 0.875

D 0.885

0.875

C

Which number is equivalent to $\frac{43}{12}$?

A 3.583

B $3.58\overline{3}$

C $3.5\overline{83}$

D $3.\overline{583}$

3.58333...

$3.58\overline{3}$

B

Which statement describes the decimal equivalent of $\frac{7}{8}$?

A It is a decimal with a repeating digit of 5.

B It is a decimal with repeating digits of 75.

C It is a decimal that terminates after 2 decimal places.

D It is a decimal that terminates after 3 decimal places.

0.875

D

I can solve mathematical problems involving four operations with rational numbers.

* Use parenthesis in calculator

What is the value of the expression $\left|-\frac{8}{9}\right| \div \left|-\frac{2}{3}\right| \cdot \left|-4\frac{1}{2}\right|$?

A -6

B $\frac{8}{27}$

C $\frac{8}{27}$

D 6

A

What is the value of the expression below?

$$-0.75 - \left(-\frac{2}{5}\right) + 0.4 + \left(-\frac{3}{4}\right)$$

A -1.5

B -0.7

C 0.8

D 2.3

B

A number, n, is multiplied by $-\frac{5}{8}$. The product is -0.4. What is the value of n?

A $-\frac{16}{25}$

B $-\frac{1}{4}$

C $\frac{1}{4}$

D $\frac{16}{25}$

D

$n \cdot \left(-\frac{5}{8}\right) = -0.4$

$-2/5$

What is the value of the expression $\frac{\left(\frac{2}{3} - \frac{5}{6}\right)}{\frac{3}{4}}$? $-\frac{2}{9}$

A $-\frac{2}{9}$

B $-\frac{1}{8}$

C $\frac{1}{8}$

D $\frac{2}{9}$

A

What is the value of the expression?

$$\frac{8}{15} \div (-0.35)$$

A $-\frac{75}{14}$

B $-\frac{32}{21}$

C $-\frac{21}{32}$

D $-\frac{14}{75}$

$-1.52\ldots \rightarrow -1\frac{11}{21}$

B

What is the value of the expression below?

$$\left(3\frac{1}{2} - 9\frac{3}{4}\right) \div (-2.5)$$

$-6\frac{1}{4} \div (-2.5) = 2.5$

A -2.5

B -2.3

C 2.3

D 2.5

D

What is the value of $\left(-\frac{1}{4} - \frac{1}{2}\right) \div \left(-\frac{4}{7}\right)$? $1\frac{5}{16}$

A $-1\frac{5}{16}$

B $-\frac{3}{7}$

C $\frac{3}{7}$

D $1\frac{5}{16}$

D

* substitute

Which expression can go in the blank to make the equation true?

$-4.5 + 4.4 + \_?\_ = 0$

A $-6.7 + 6.8$

B $-6.7 \div (-6.6)$

C $7.2 \div (-7.2)$

D $7.2 \div (-7.3)$

$-0.1 + \_\_\_ = 0$

0.1

A

I can solve mathematical and real-world problems involving four operations with rational numbers.

The table below shows the lowest temperature, in degrees Fahrenheit, on each of 5 days for a city.

LOWEST DAILY TEMPERATURES

Day	Temperature(°F)
Monday	–36°
Tuesday	–25°
Wednesday	12°
Thursday	–3°
Friday	18°

B

What is the mean (average) lowest temperature, in degrees Fahrenheit, in the city for those 5 days?

A -18.8°

B -6.8°

C 6.8°

D 18.8°

$$\frac{-36 + (-25) + 12 + (-3) + 18}{5} = \frac{-34}{5}$$

D

Three classes at a junior high school raised money to buy new computers.

- Ms. Moore's class raised $249.00.
- Ms. Aguilar's class raised $396.62 more than Ms. Moore's class.
- Mr. Barry's class raised $430.43 less than Ms. Aguilar's class.

What is the total amount of money raised by all three classes?

A $215.19

B $464.19

C $1,076.05

(D) $1,109.81

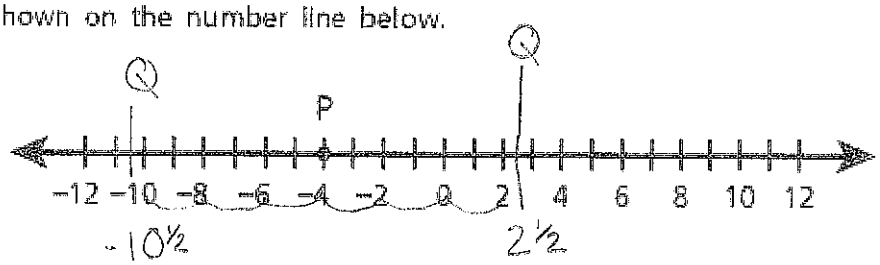
$645.62
$215.19

645.62
− 430.43
215.19

396.62
+ 249
645.62

C

Point P is shown on the number line below.



The distance between point Q and point P is $6\frac{1}{2}$ units. Which number could represent point Q?

A $-9\frac{1}{2}$

B $1\frac{1}{2}$

(C) $2\frac{1}{2}$

D $10\frac{1}{2}$

Yesterday, the temperature at noon was 11.4°F. By midnight, the temperature had decreased by 15.7 degrees. What was the temperature at midnight?

(A) -4.3°F

B -11.4°F

C -15.7°F

D -27.1°F

$11.4 - 15.7 = -4.3$

The width of a rectangle is $6\frac{2}{3}$ inches. The length of the rectangle is twice its width. What is the perimeter of the rectangle?

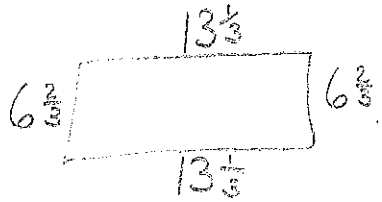
$w = 6\frac{2}{3}$

A 20 inches

(B) 40 inches

C $30\frac{2}{3}$ inches

D $88\frac{8}{9}$ inches



$l = 6\frac{2}{3}(2) = 13\frac{1}{3}$

A pile of newspapers in Ms. McGrath's art class was $17\frac{3}{4}$ inches high. Each consecutive week, for the next 5 weeks, the height of the pile of newspapers increased by $8\frac{7}{12}$ inches. What was the height, in inches, of the pile after 3 weeks?

A $25\frac{3}{4}$

B $26\frac{1}{4}$

C $42\frac{1}{4}$

(D) $43\frac{1}{2}$

$17\frac{3}{4} + 3(8\frac{7}{12}) = 43\frac{1}{2}$

I can justify the steps taken to solve multi-step mathematical and real-world problems involving rational numbers.

Jen's goal is to run a total of 22 miles in five days. The table below shows her log for the number of miles she ran on Monday, Tuesday, Wednesday, and Thursday.

JEN'S RUNNING LOG

Day	Distance (miles)
Monday	$4\frac{3}{4}$
Tuesday	$5\frac{1}{8}$
Wednesday	0
Thursday	$6\frac{1}{4}$
Friday	?

How many miles must Jen run on Friday to reach her goal?

Show your work.

goal = 22 miles

already ran $16\frac{1}{8}$

$22 - 16\frac{1}{8} = 5\frac{7}{8}$ miles

5.875 miles

Last week Rachel power walked $2\frac{3}{5}$ miles per day on each of the 7 days. During the same week, she also jogged $5\frac{3}{4}$ miles per day on 4 days. What was the total number of miles Rachel power walked and jogged last week?

Show your work.

$2\frac{3}{5}(7) + 5\frac{3}{4}(4) = 41\frac{1}{5}$

Answer $41\frac{1}{5}$ miles 41.2 miles