

## Rational Number Operations Pre/PostTest (Demo Version)

Read each question carefully.

AZ-7.NS.A.2c Apply properties of operations as strategies to multiply and divide rational numbers. [From cluster: Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers]

1) Simplify.

$$4\frac{1}{2} \times \frac{22}{27} =$$

A)  $-2\frac{1}{3}$

B)  $-2\frac{2}{3}$

C)  $3\frac{2}{3}$

D)  $3\frac{3}{4}$

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AZ-7.NS.A.1d Apply properties of operations as strategies to add and subtract rational numbers. [From cluster: Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers]

2) Which answer is correct?

$$0.8 + \frac{1}{9}$$

A)  $\frac{0.8}{9}$

B)  $\frac{8}{9}$

C) 0.9

D)  $0.9\bar{1}$

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AZ-7.NS.A.1a Describe situations in which opposite quantities combine to make 0. For example, a hydrogen atom has 0 charge because its two constituents are oppositely charged. [From cluster: Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers]

3) Which situation is modeled by the equation below?

$$35 + (-35) = 0$$

- A) getting paid \$35 for mowing a lawn, then getting paid \$35 for mowing another lawn
  - B) getting paid \$35 for mowing a lawn, then spending \$35 on video games
  - C) spending \$35 for new video games, then spending \$70 more on video games at another store
  - D) spending \$35 for new video games, then mowing a lawn for free
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AZ-7.NS.A.3 Solve real-world and mathematical problems involving the four operations with rational numbers. (Computations with rational numbers extend the rules for manipulating fractions to complex fractions.) [From cluster: Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers]

4) The temperature was  $75^{\circ}$  Fahrenheit. The temperature dropped at a rate of  $10^{\circ}$  per hour.

What was the temperature in degrees 8 hours later?

- A)  $-15^{\circ}$  F
  - B)  $-5^{\circ}$  F
  - C)  $5^{\circ}$  F
  - D)  $15^{\circ}$  F
-

## Rational Number Operations Pre/PostTest (Demo Version)

AZ-7.NS.A.1c Understand subtraction of rational numbers as adding the additive inverse,  $p - q = p + (-q)$ . Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts. [From cluster: Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers]

5) What is the distance between -8 and -5?

- A) -13
  - B) -3
  - C) 3
  - D) 13
- 

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6) What is the distance between 7 and  $1\frac{1}{3}$ ?

- A)  $5\frac{2}{3}$
  - B)  $6\frac{1}{3}$
  - C)  $6\frac{2}{3}$
  - D)  $8\frac{1}{3}$
-

## Rational Number Operations Pre/PostTest (Demo Version)

AZ-7.NS.A.1d Apply properties of operations as strategies to add and subtract rational numbers. [From cluster: Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers]

7) What is the difference?

$$(-14) - (-8)$$

- A) -22
  - B) -6
  - C) 6
  - D) 22
- 

AZ-7.NS.A.1d Apply properties of operations as strategies to add and subtract rational numbers. [From cluster: Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers]

8) What is the sum?

$$-68 + (-17)$$

- A) -85
  - B) -51
  - C) 51
  - D) 85
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## Rational Number Operations Pre/PostTest (Demo Version)

AZ-7.NS.A.2b Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If  $p$  and  $q$  are integers, then  $-(p/q) = (-p)/q = p/(-q)$ . Interpret quotients of rational numbers by describing real-world contexts. [From cluster: Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers]

9) What is the quotient?

$$(-64) \div (-4)$$

- A) -18
  - B) -16
  - C) 16
  - D) 18
- 

AZ-7.NS.A.2b Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If  $p$  and  $q$  are integers, then  $-(p/q) = (-p)/q = p/(-q)$ . Interpret quotients of rational numbers by describing real-world contexts. [From cluster: Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers]

10) What is the quotient?

$$(-36) \div 3$$

- A) -33
  - B) -12
  - C) 12
  - D) 18
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## Rational Number Operations Pre/PostTest (Demo Version)

AZ-7.NS.A.1b Understand  $p + q$  as the number located a distance  $|q|$  from  $p$ , in the positive or negative direction depending on whether  $q$  is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts. [From cluster: Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers]

11)  $x + 38 = 0$

What is the value of  $x$ ?

- A) 38
  - B) -38
  - C) 0
  - D) -1
- 

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12)  $x + (-19) = 0$

What is the value of  $x$ ?

- A) -1
  - B) 0
  - C) 19
  - D) -19
-

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AZ-7.NS.A.1d Apply properties of operations as strategies to add and subtract rational numbers. [From cluster: Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers]

13) What is the difference?

$$34 - (-75)$$

- A) -109
  - B) -41
  - C) 41
  - D) 109
- 

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14) What is the difference?

$$(-63) - 65$$

- A) -128
  - B) -2
  - C) 2
  - D) 128
-

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15) What is the sum?

$$85 + (-845)$$

- A) -760
  - B) -265
  - C) 760
  - D) 840
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AZ-7.NS.A.1d Apply properties of operations as strategies to add and subtract rational numbers. [From cluster: Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers]

16) What is the difference?

$$34 - (-75)$$

- A) -109
  - B) -41
  - C) 41
  - D) 109
-



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AZ-7.NS.A.1b Understand  $p + q$  as the number located a distance  $|q|$  from  $p$ , in the positive or negative direction depending on whether  $q$  is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts. [From cluster: Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers]

17)  $x + (-19) = 0$

What is the value of  $x$ ?

- A) -1
  - B) 0
  - C) 19
  - D) -19
- 

AZ-7.NS.A.2a Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as  $(-1)(-1) = 1$  and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts. [From cluster: Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers]

18) What is the value of the expression below?

$(-7)(8)$

- A) -78
  - B) -56
  - C) 48
  - D) 56
-

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AZ-7.NS.A.1d Apply properties of operations as strategies to add and subtract rational numbers. [From cluster: Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers]

19) What is the difference?

$$(-984) - 840$$

- A) -1,824
  - B) -1,724
  - C) 144
  - D) 1,724
- 

AZ-7.NS.A.1c Understand subtraction of rational numbers as adding the additive inverse,  $p - q = p + (-q)$ . Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts. [From cluster: Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers]

20) What is the distance between -7 and 3?

- A) -10
  - B) -4
  - C) 4
  - D) 10
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