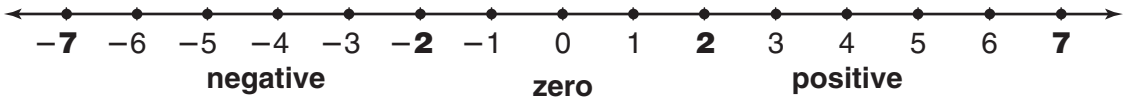
Name _____ Class _____ Date _____

Reteaching 1-1

Comparing and Ordering Integers

The numbers 2 and −2 are opposites. The numbers 7 and −7 are opposites.
Integers are the set of positive whole numbers, their opposites, and zero.



You can use the number line to compare integers.

−2 is less than 0.
$-2 < 0$

7 is greater than 2.
$7 > 2$

Numbers to the left are less. −2 is farther left than 0.	Numbers to the right are greater. 7 is farther to the right than 2.

Compare using <, >, or =.

1. 4 ☐ 2
2. −3 ☐ −2
3. 3 ☐ −4
4. −1 ☐ −2
5. 0 ☐ 5
6. 0 ☐ −4
7. −6 ☐ 4
8. −8 ☐ −2
9. 3 ☐ 0
10. −7 ☐ −10
11. −10 ☐ 10
12. 1 ☐ −1

Find the opposite of each number.

13. 8 _____
14. −5 _____
15. 147 _____

Find each sum.

16. 12 + 12 _____
17. −15 + 15 _____
18. 18 + 18 _____
19. 5 + 5 _____
20. −24 + 24 _____
21. −225 + 225 _____

Order the numbers from least to greatest.

22. −4, 5, −2, 0, 1
_____
23. 6, −3, −5, 4, −6
_____
24. 3, −5, 4, −4, −7, 0
_____
25. 1, 3, −7, −6, 5, −2
_____

Name _____ Class _____ Date _____

Reteaching 1-2

Adding and Subtracting Integers

Use these rules to add and subtract integers.

Adding Integers

Same Sign	Different Signs
• The sum of two positive integers is positive. Example: $6 + 16 = 22$ • The sum of two negative integers is negative. Example: $-9 + (-3) = -12$	• First find the absolute values of each number. • Then subtract the lesser absolute value from the greater. • The sum has the sign of the integer with the greater absolute value. Example: $-10 + 9 = -1$

Subtracting Integers

- To subtract integers, add the opposite.
- Then following the rules for adding integers. Example: $6 - (-3) = 6 + 3 = 9$

Find each sum.

1. $8 + (-2)$ _____
2. $-9 + 4$ _____
3. $3 + (-2)$ _____
4. $-1 + 11$ _____
5. $12 + 13$ _____
6. $-9 + 5$ _____
7. $7 + 2$ _____
8. $-1 + (-7)$ _____
9. $-3 + 0$ _____
10. $-1 + (-1)$ _____
11. $6 + 5$ _____
12. $3 - (-2)$ _____

Complete.

13. $-3 - 4$ Change to addition: $-3 +$ _____ = _____
14. $5 - 2$ Change to addition: $5 +$ _____ = _____
15. $-6 - (-10)$ Change to addition: $-6 +$ _____ = _____

Find each difference.

16. $4 - 5$ _____
17. $-5 - 4$ _____
18. $-8 - (-7)$ _____
19. $19 - (-6)$ _____
20. $-10 - 12$ _____
21. $-12 - 10$ _____
22. $-4 - (-5)$ _____
23. $-2 - (-3)$ _____
24. $9 - (-7)$ _____
25. $0 - 3$ _____
26. $6 - 8$ _____
27. $0 - (-10)$ _____

Name _____ Class _____ Date _____

Reteaching 1-3

Multiplying and Dividing Integers

To multiply integers:

- If the signs are alike, the product is positive.

$$2 \cdot 3 = 6$$
$$-2 \cdot -3 = 6$$

- If the signs are different, the product is negative.

$$2 \cdot -3 = -6$$
$$-2 \cdot 3 = -6$$

To divide integers:

- If the signs are alike, the quotient is positive.

$$6 \div 3 = 2$$
$$-6 \div -3 = 2$$

- If the signs are different, the quotient is negative.

$$6 \div -3 = -2$$
$$-6 \div 3 = -2$$

Study these four examples. Write positive or negative to complete each statement.

$$\mathbf{7 \cdot 3 = 21} \qquad \mathbf{7 \cdot -3 = -21}$$
$$\mathbf{-7 \cdot -3 = 21} \qquad \mathbf{-7 \cdot 3 = -21}$$

1. When both integers are positive, the product is _____.

2. When one integer is positive and one is negative, the product is _____.

3. When both integers are negative, the product is _____.

$$\mathbf{21 \div 3 = 7} \qquad \mathbf{-21 \div -3 = 7}$$
$$\mathbf{21 \div -3 = -7} \qquad \mathbf{-21 \div 3 = -7}$$

4. When both integers are positive, the quotient is _____.

5. When both integers are negative, the quotient is _____.

6. When one integer is positive and one is negative, the quotient is _____.

Tell whether each product or quotient will be *positive* or *negative*.

7. $4 \cdot 7$ _____

8. $-4 \cdot 7$ _____

9. $-4 \cdot -7$ _____

10. $4 \cdot -7$ _____

11. $10 \cdot -4$ _____

12. $-25 \div 5$ _____

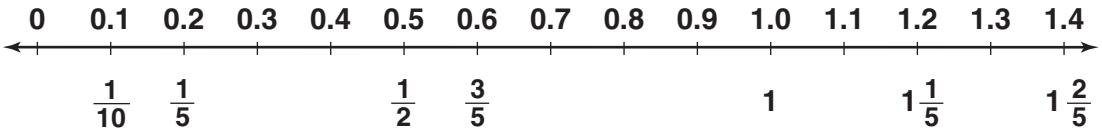
13. $-2 \cdot -2$ _____

14. $100 \div 10$ _____

Name _____ Class _____ Date _____

Reteaching 1-4

Fractions and Decimals



To change a fraction to a decimal, divide the numerator by the denominator.

$\frac{3}{5}$ Think: $3 \div 5$

$$5\overline{)3.0}\quad 0.6$$
$$-30$$
$$0$$

$\frac{3}{5} = 0.6$

To change a decimal to a fraction:

① Read the decimal to find the denominator. Write the decimal digits over 10, 100, or 1,000.

② 0.65 is 65 *hundredths* $\rightarrow \frac{65}{100}$

Use the GCF to write the fraction in simplest form.

The GCF of 65 and 100 is 5.

$$\frac{65}{100} = \frac{65 \div 5}{100 \div 5} = \frac{13}{20}$$

Write each fraction as a decimal.

1. $\frac{4}{5} =$ _____
2. $\frac{3}{4} =$ _____
3. $\frac{1}{6} =$ _____
4. $\frac{1}{4} =$ _____
5. $\frac{2}{3} =$ _____
6. $\frac{7}{10} =$ _____
7. $\frac{5}{9} =$ _____
8. $\frac{1}{5} =$ _____
9. $\frac{3}{8} =$ _____

Write each decimal as a mixed number or fraction in simplest form.

10. $0.4 =$ _____
11. $0.75 =$ _____
12. $1.5 =$ _____
13. $0.35 =$ _____
14. $2.7 =$ _____
15. $1.8 =$ _____
16. $0.625 =$ _____
17. $0.78 =$ _____
18. $0.88 =$ _____

Order from least to greatest.

19. $2.\overline{6}, \frac{13}{6}, 2\frac{5}{6}$
20. $2.\overline{02}, 2\frac{1}{200}, 2.0202$
21. $\frac{5}{4}, 1\frac{4}{5}, 1.\overline{4}$

_____ _____ _____

Name _____ Class _____ Date _____

Reteaching 1-5

Rational Numbers

A **rational number** is a number that can be written as a quotient of two integers, where the divisor is not zero.

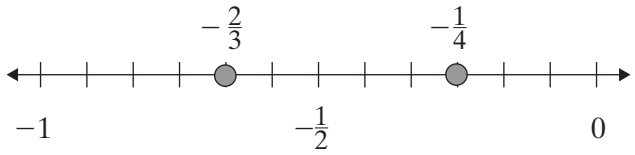
A negative rational number can be written in three different ways.

$$-\frac{2}{3} = -\frac{2}{3} = -\frac{2}{3}$$

Comparing Negative Rational Numbers

Compare $-\frac{2}{3}$ and $-\frac{1}{4}$.

Method 1 Use a number line. Graph both points on a number line and see which is farther to the left.



Since $-\frac{2}{3}$ is farther to the left, $-\frac{2}{3} < -\frac{1}{4}$.

Method 2 Use the lowest common denominator.

$$-\frac{2}{3} = \frac{-2}{3} = \frac{-2 \times 4}{3 \times 4} = \frac{-8}{12} \qquad -\frac{1}{4} = \frac{-1}{4} = \frac{-1 \times 3}{4 \times 3} = \frac{-3}{12}$$

Since $\frac{-8}{12} < \frac{-3}{12}$, then $-\frac{2}{3} < -\frac{1}{4}$.

Compare. Use <, >, or =.

1. $-\frac{4}{9} \square -\frac{2}{3}$
2. $-1 \square -\frac{4}{5}$
3. $-\frac{7}{8} \square -\frac{1}{8}$
4. $-\frac{1}{3} \square -\frac{5}{6}$
5. $-\frac{2}{5} \square -\frac{1}{10}$
6. $-\frac{2}{8} \square -\frac{1}{4}$

Order from least to greatest.

7. $-\frac{1}{3}$, 0.3, -0.35, $-\frac{3}{10}$

_____

8. $\frac{1}{5}$, -0.25, 0.21, $\frac{3}{10}$

_____

9. You and your brother invested an equal amount of money in a college savings plan. In the last quarter your investment was worth $1\frac{5}{6}$ of its original value. Your brother's investment was worth 1.85 of its original value. Whose investment is worth more?

_____

Name _____ Class _____ Date _____

Reteaching 1-6

Adding and Subtracting Rational Numbers

Use these rules to add and subtract rational numbers.

Adding and Subtracting Integers

Same Sign

- The sum of two positive rational numbers is positive.
  Example: $15.6 + 4.5 = 20.1$
  Example: $\frac{2}{9} + \frac{8}{9} = 1\frac{1}{9}$
- The sum of two negative rational numbers is negative.
  Example: $-3.42 + (-5.74) = -9.16$
  Example: $-1\frac{3}{4} + \left(-4\frac{3}{4}\right) = -6\frac{1}{2}$

Different Signs

- First find the absolute values of each addend.
- Then subtract the lesser absolute value from the greater.
- The sum has the sign of the addend with the greater absolute value.
  Example: $-25.8 + 17.3 = -8.5$
  Example: $-2\frac{1}{2} + 1\frac{1}{4} = -1\frac{1}{4}$

Subtracting Rational Numbers

- To subtract rational numbers, add the opposite.
- Then following the rules for adding rational numbers.
  Example: $-9.25 - (-3.4) = -9.25 + 3.4 = -5.85$
  Example: $4 - \left(-2\frac{3}{10}\right) = 4 + \left(2\frac{3}{10}\right) = 6\frac{3}{10}$

Find each sum.

1. $43.2 + 26.7$ _____
2. $-81.22 + 14.9$ _____
3. $-4.8 + (-53.5)$ _____
4. $2\frac{5}{9} + 3\frac{4}{9}$ _____
5. $-2\frac{3}{5} + 1\frac{1}{5}$ _____
6. $-6\frac{1}{3} + \left(-7\frac{1}{3}\right)$ _____

Find each difference.

7. $15.64 - 8.5$ _____
8. $-0.392 - 0.26$ _____
9. $-5.4 - (-1.6)$ _____
10. $6 - 5\frac{5}{6}$ _____
11. $-4\frac{3}{4} - 2\frac{1}{4}$ _____
12. $-7\frac{4}{5} - \left(-3\frac{3}{5}\right)$ _____

Name _____ Class _____ Date _____

Reteaching 1-7

Multiplying Rational Numbers

Remember these rules when multiplying rational numbers.

1. When both factors are positive, the product is positive.

   Multiply: $\left(2\frac{2}{3}\right)\left(1\frac{5}{8}\right) = \left(\frac{8}{3}\right)\left(\frac{13}{8}\right) = \frac{104}{24} = 4\frac{1}{3}$

2. When both factors are negative, the product is positive.

   Multiply: $(-4.35)(-2.44) = 10.614$

3. When both factors have different signs, the product is negative.

   Multiply: $-\frac{3}{4} \times \frac{2}{5} = \frac{-3 \times 2}{4 \times 5} = \frac{-6}{20} = -\frac{6}{20} = -\frac{3}{10}$

Find each product. Write the product in simplest form.

1. 2.8×0.05 _____

2. $\frac{5}{8} \cdot \frac{2}{5}$ _____

3. $1.45 \cdot 0.7$ _____

4. $2\frac{3}{5} \cdot \frac{7}{8}$ _____

5. $(-2.07)(-4.9)$ _____

6. $\frac{5}{12} \cdot \left(-\frac{3}{10}\right)$ _____

7. $9.3(-0.56)$ _____

8. $\frac{1}{2} \times 5\frac{1}{6}$ _____

9. $0.006(3.75)$ _____

10. $-1\frac{2}{3} \times 5$ _____

11. -3.8×912 _____

12. $\left(-2\frac{3}{5}\right)\left(-\frac{1}{4}\right)$ _____

Name _____ Class _____ Date _____

Reteaching 1-8

Dividing Rational Numbers

Divide: $38.25 \div 1.5$.		Divide: $3\frac{3}{4} \div 1\frac{2}{5}$.	
1. Rewrite the problem with a whole number divisor.	$1.\,5\overline{)38.25}$ ↓	**1.** Rewrite mixed numbers as improper fractions as needed.	$\frac{15}{4} \div \frac{7}{5}$
2. Place the decimal point in the quotient.	$1.\,5.\overline{)38.2.5}$ ↑ ↑ **Move 1 place each.**	**2.** Multiply by the reciprocal of the divisor.	$\frac{15}{4} \cdot \frac{5}{7}$
3. Divide. Then check.	$15\overline{)382.5}$ 25.5; −30; 82; −75; 75; −75; 0	**3.** Multiply numerators. Multiply denominators.	$\frac{15 \cdot 5}{4 \cdot 7} = \frac{75}{28}$
	$25.5 \times 15 = 382.5$ ✔ **Multiply to check.**	**4.** Simplify.	$\frac{75}{28} = 2\frac{19}{28}$

Find each quotient. Simplify your answers.

1. $1\frac{5}{8} \div \frac{5}{8}$ _____

2. $-43.55 \div 6.5$ _____

3. $-\frac{2}{5} \div \frac{4}{25}$ _____

4. $-0.072 \div 0.8$ _____

5. $-12\frac{4}{5} \div \left(-1\frac{1}{15}\right)$ _____

6. $340.2 \div -4.2$ _____

7. $-15 \div \frac{1}{2}$ _____

8. $12.6 \div 0.21$ _____

9. $-7\frac{1}{3} \div 2\frac{1}{5}$ _____

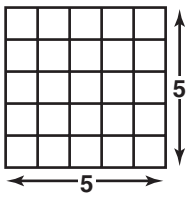
10. $-11.1 \div (-37)$ _____

Name _____ Class _____ Date _____

Reteaching 1-9

Irrational Numbers and Square Roots

- The *square* of 5 is 25.
  $5 \cdot 5 = 5^2 = 25$
- The *square root* of 25 is 5 because $5^2 = 25$.



$1^2 = 1$
$2^2 = 4$
$3^2 = 9$
$4^2 = 16$
$5^2 = 25$
} *perfect squares*

$\sqrt{25} = 5$

Example: You can use a calculator to find square roots.
Find $\sqrt{36}$ and $\sqrt{21}$ to the nearest tenth.

36 $\boxed{\sqrt{\ }}$ = 6 21 $\boxed{\sqrt{\ }}$ ≈ 4.5825757 ≈ 4.6

You can estimate square roots like $\sqrt{52}$ and $\sqrt{61}$.

Perfect squares	49		$\sqrt{49} = 7$		$\sqrt{49} = 7$
	52	Estimate	$\sqrt{52} \approx 7$	Estimate	$\sqrt{61} \approx 8$
	64		$\sqrt{64} = 8$		$\sqrt{64} = 8$

Find each square root. Estimate to the nearest integer if necessary.
Use ≈ to show that a value is estimated.

1. $\sqrt{16}$ _____

2. $\sqrt{85}$ _____

3. $\sqrt{26}$ _____

4. $\sqrt{36}$ _____

5. $\sqrt{98}$ _____

6. $\sqrt{40}$ _____

7. $\sqrt{100}$ _____

8. $\sqrt{18}$ _____

9. $\sqrt{5}$ _____

10. $\sqrt{121}$ _____

11. $\sqrt{68}$ _____

12. $\sqrt{144}$ _____

13. $\sqrt{29}$ _____

14. $\sqrt{64}$ _____

15. $\sqrt{37}$ _____

16. $\sqrt{75}$ _____

17. If a whole number is not a perfect square, its square root is an *irrational number.* List the numbers from exercises 1–16 that are irrational.

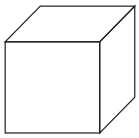
_____

_____

Name _____ Class _____ Date _____

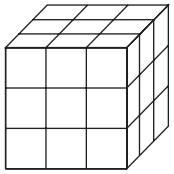
Reteaching 1-10

Cube Roots



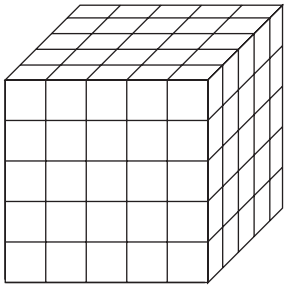
The cube of 1 is 1.

$1 \times 1 \times 1 = 1^3 = 1$



The cube of 3 is 27.

$3 \times 3 \times 3 = 3^3 = 27$



The cube of 5 is 125.

$5 \times 5 \times 5 = 5^3 = 125$

perfect cubes

$1^3 = 1$ $3^3 = 27$ $5^3 = 125$

Example: You can solve cube root equations: $x^3 = \frac{27}{216}$

$\sqrt[3]{x^3} = \sqrt[3]{\frac{27}{216}}$ ← **Find the cube root of each side.**

$= \frac{\sqrt[3]{27}}{\sqrt[3]{216}}$ ← **Find the cube root of the numerator and denominator.**

$x = \frac{3}{6} = \frac{1}{2}$ ← **Simplify.**

Find the cube root of each number.

1. 729 _____

2. 125 _____

3. 512 _____

4. -64 _____

5. $\frac{1}{216}$ _____

6. $\frac{125}{1000}$ _____

Solve each equation by finding the value of *x*.

7. $x^3 = 27$ _____

8. $x^3 = 1{,}728$ _____

9. $x^3 = \frac{343}{729}$ _____