

Algebra IA

Lesson 2.6 Divide Real Numbers

Warm-Up

Use the Distributive Property to simplify each of the following.

(a) $6(2-x)$

$12-6x$

(b) $-x(3x+2)$

$-3x^2-2x$

(c) $4x-5+3-x$

$3x-2$

(d) $(3x-2)4+x$

$12x-8+x$
 $13x-8$

Example 1. Find the Multiplicative Inverse

(a) $10 \left(\frac{1}{10} \right)$

(b) $\frac{1}{7} (7)$

(c) $-6 \left(-\frac{1}{6} \right)$

(d) $-\frac{5}{3} \left(-\frac{3}{5} \right)$

(e) $\frac{2}{3} \left(\frac{3}{2} \right)$

Inverse Property of Multiplication

$$a \cdot \frac{1}{a} = \frac{1}{a} \cdot a = 1 \quad (\text{as long as } a \neq 0)$$

$\frac{1}{a}$ is called the **Multiplicative Inverse**

Example 2. Divide Real Numbers

Find the quotient.

(a) $18 \div (-3)$

-6

(b) $-16 \div \left(-\frac{8}{3} \right)$

$\frac{-16 \cdot 3}{1 \cdot 8} = -\frac{48}{8}$

6

(c) $\frac{3}{5} \div \frac{3}{8}$

$\frac{3}{5} \cdot \frac{8}{3} = \frac{8}{5}$

$1\frac{3}{5}$

Example 3. Using Division to Find the Mean

The team scores for the Saline High School golf team are listed in the table at the right.

(a) What would the team's total score be for the entire season?

$(-4) + (-4) + 1 + (-5) + 2 + (-2) = -4$

(b) What was the team's mean score for the entire season?

$\frac{\text{TOTAL score}}{\# \text{ OF MATCHES}} = \frac{-4}{6} = -\frac{2}{3}$

Opponent	Score
Bedford	-4
Pioneer	-4
Huron	+1
Dexter	-5
Adrian	+2
Chelsea	-2

Example 4. Simplifying Algebraic Expressions with Division

Simplify each of the following expressions by rewriting the fraction as division.

(a) $\frac{40x+32}{8}$

$$\frac{40x}{8} + \frac{32}{8}$$

$$5x + 4$$

(b) $\frac{-6y+18}{3}$

$$-2y + 6$$

Try It!

1. Find the mean daily minimum temperature for Saline based on the table at the right.

$$\frac{10 + (-3) + (-5) + 6 + 5 + (-1)}{6}$$

The mean DAILY MINIMUM temperature for Saline is 2°F .

$$\frac{12}{6} = 2$$

Day in January	Temperature ($^{\circ}\text{F}$)
1	10
2	-3
3	-5
4	6
5	5
6	-1

Simplify each of the following.

2. $-32 \div (-4)$

$$8$$

3. $-\frac{2}{5} \div 12$

$$-\frac{2}{5} \cdot \frac{1}{12} = -\frac{1}{30}$$

4. $18 \div \left(-\frac{2}{9}\right)$

$$18 \cdot -\frac{9}{2} = -81$$

5. $\frac{2x-8}{4}$

$$-\frac{1}{2}x + 2$$

6. $\frac{6x-14}{2}$

$$3x - 7$$

7. $\frac{9z-6}{-3}$

$$-3z + 2$$

Assignment: Page 106-107 (4 - 46) even

Review:

1. $12 - 9 + 7$

2. $42 \div 6 + 8$

3. $2(11 - 7) \div 3$

4. $8 + (91 \div 13) \cdot \frac{4}{7}$

5. $\frac{3}{4} \cdot 8 - 6$

6. $23 - [(12 \div 3)^2 + 8]$

7. $11 \cdot (-5) + 20$

8. $-8 \cdot (-9) - 80$

9. $-16 + (-6) \cdot (-8)$