

Chapter 8 - Real Numbers and Introduction to Algebra

8.1 Symbols and Sets of Numbers

8.1 Exercise Set, page 562: 1, 5, 11, 21, 25, 39, 67

8.2 Exponents, Order of Operations, and Variable Expressions

8.2 Exercise Set, page 572: 1, 5, 7, 15, 21, 29, 35, 55, 81, 89

8.3 Adding Real Numbers

8.3 Exercise Set, page 581: 1, 11, 27, 57, 59, 65, 67, 79, 87

8.4 Subtracting Real Numbers

8.4 Exercise Set, page 590: 3, 13, 19, 71

8.5 Multiplying and Dividing Real Numbers

8.5 Exercise Set, page 605: 5, 9, 11, 25, 35, 39, 59, 91, 105, 113, 125

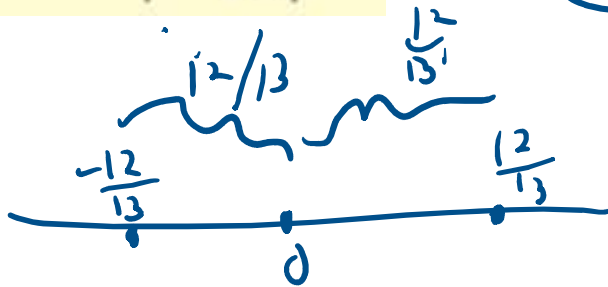
13 textbook sections / 6 class meetings

$13/6 = 2.1667$

8.1:67

Objective D Find each absolute value. See Example 12.

67. $\left| -\frac{12}{13} \right| = \frac{12}{13}$



Algebraic definition

$$|x| = \begin{cases} x & \text{if } x \geq 0 \\ -x & \text{if } x < 0 \end{cases}$$

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$$|5|, \quad 5 \geq 0 \Rightarrow |5| = 5$$

$$|-5|, \quad -5 < 0 \Rightarrow |-5| = -(-5) = 5$$

8.3

Memorize if it helps you

Adding Real Numbers

To add two real numbers

1. with the *same sign*, add their absolute values. Use their common sign as the sign of the answer.
2. with *different signs*, subtract their absolute values. Give the answer the same sign as the number with the larger absolute value.

$$3 + 5 \quad \text{same sign}$$

$$|3| + |5| = 3 + 5 = 8$$

$$|5| = 5 > 3 = |3|$$

$$\therefore \text{answer } \boxed{+8}$$

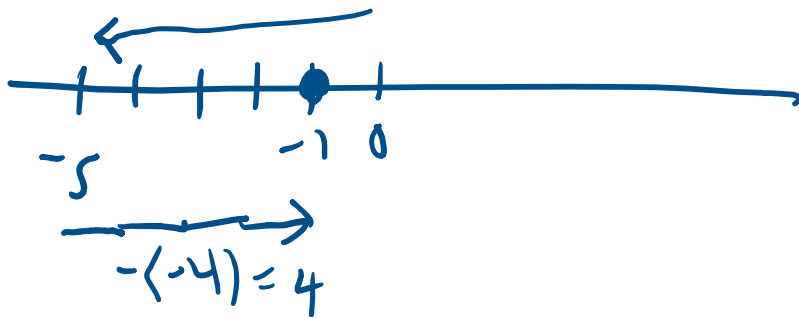
$$10 + (-9) = 1$$

$$= 10 - 9 = 1$$

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

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

$$a / (b + c) = ab + ac$$



$$-35 + 40 = 5$$

$$\rightarrow 7 - (-4) = -3$$

$$-7 + 4 = -3$$

$$= -(7 - 4) = -3$$

Memorize

Opposite or Additive Inverse

Two numbers that are the same distance from 0 but lie on opposite sides of 0 are called **opposites** or **additive inverses** of each other.