

### Unit 3 Objective 3 Remediation

## Simplifying Expressions with Opposites and Absolute Value

You find the opposite of a <b>positive</b> number by <b>changing its sign from + to -</b>	You find the opposite of a <b>negative</b> number by <b>changing its sign from - to +</b>
Find the opposite of $5\frac{1}{4}$ .	Find the opposite of $-10.2$ .
<b>Answer:</b> The opposite of $5\frac{1}{4}$ is $-5\frac{1}{4}$ .	<b>Answer:</b> The opposite of $-10.2$ is $10.2$

Find the opposite of each number.

1. 2.33

2. 1200

3.  $\frac{1}{17}$

4.  $-0.13$

5.  $-\frac{9}{2}$

6.  $-1356$

7.  $-2\frac{6}{13}$

8.  $3\frac{99}{100}$

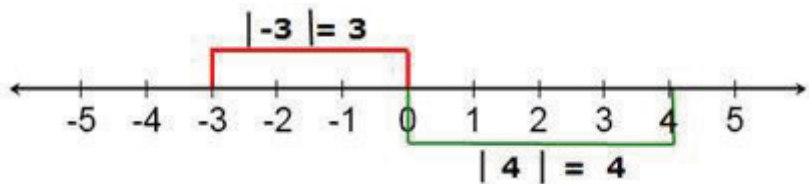
9. 12.56

10.  $-22.7$

11.  $-12.56$

12.  $100\frac{1}{2}$

**Absolute value** is the distance between a number and zero on a number line. Because it is distance, it is a positive value. We use **|bars|** to represent absolute value.



Find the absolute value of each number.

1.  $|2.33|$

2.  $|1200|$

3.  $|\frac{1}{17}|$

4.  $|-0.13|$

5.  $|- \frac{9}{2}|$

6.  $|-1356|$

7.  $|-2\frac{6}{13}|$

8.  $|3\frac{99}{100}|$

9.  $|12.56|$

10.  $|-22.7|$

11.  $-12.56$

12.  $100\frac{1}{2}$

**When simplifying expressions involving opposites and absolute value, follow order of operations.**

1. Simplify  $-(-12.8)$

**Answer:** 12.8

The opposite of -12.8 is 12.8.

2. Simplify  $-|24 - 19|$

**Answer:** -5

Perform the subtraction  $-|5|$

The opposite of the absolute value of 5 is -5

3. Simplify  $|-2| \cdot |-9|$

**Answer:** 18

Take the absolute values  $2 \cdot 9$

Multiply 18

### Try These

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1.  $-|-2.8|$

2.  $-|2 + 9|$

3.  $|-5| \cdot |6|$

4.  $-(|-2| + |-2|)$

5.  $|-2| - |2|$

6.  $|2.5| \cdot |2.5|$

7.  $|2 + 8| - |2 + 3|$

8.  $|2 + 3| \cdot |2 + 3|$

9.  $(2 + 6) - |6 - 2|$

10.  $-|3 + 2 \cdot 5|$

11.  $-|-3| + |-8|$

12.  $|6 - 2| - |-4|$

13.  $|-3| + |5 - 2|$

14.  $|-5| + |6| - |-1|$

15.  $-|-8 + 12| + 10$

16.  $|10 - 13|$

17.  $|9 - 2| - |-7|$

18.  $-3|6 + 2|$

19.  $-|2 - 9| + |-8|$

20.  $-|-4(5 - 2)|$