
Chapter 1.3 Properties of Arithmetic

Section 1. The Additive Inverse of a Number

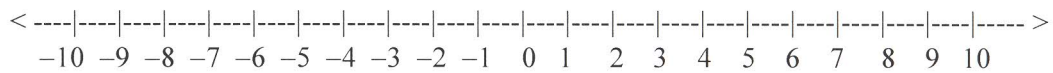
1. This is also known as the number's _____
2. The notation for the opposite of a number is _____
3. Simplify the following:
 - a. $-(-12)$ _____
 - b. $-(+6)$ _____
 - c. $-[-(-15)]$ _____
 - d. $-(-21)$ _____
 - e. $-[-(+7)]$ _____
 - f. $-(-\frac{3}{2})$ _____
4. The RULE OF THE DOUBLE NEGATIVE
 - a. For any real number, a : _____

Section 2 Absolute Value

5. Absolute Value: _____

Notation: _____

- a. Consider the Number Line:



Simplify:

- a. $|+6|$ _____
- b. $|-16|$ _____
- c. $|-10|$ _____
- d. $|25|$ _____
- f. $-|-4|$ _____
- g. $-(-|-7|)$ _____
- h. $-|37|$ _____
- i. $-|(-3)|$ _____

Section 3. Addition of Signed Numbers, and Combination of Like Terms

6. When adding two signed numbers together, the rules are as follows:

- a. _____
- b. _____
- c. _____

7. When adding more than two terms together: _____

8. Rewrite the following with one sign per term.

- | | | | |
|----|--|----|-------|
| a. | $(+6) + (-10)$ | a. | _____ |
| b. | $\left(\frac{3}{5}\right) - \left(-\frac{1}{4}\right)$ | b. | _____ |
| c. | $(-4) + (-5) - (+10)$ | c. | _____ |
| d. | $(+16) - (-10) + (-20) - (+4)$ | d. | _____ |
| e. | $\left(-\frac{4}{5}\right) - \left(-\frac{3}{8}\right) + \left(-2\frac{1}{2}\right)$ | e. | _____ |
| f. | $ -12 - -10 + (-6) - (-10)$ | f. | _____ |

Section 4. Subtraction of two Signed Numbers

9. When subtracting two signed numbers, the rules are as follows:

- a. _____
- b. _____

10. Rewrite the following subtraction expressions using ONE SIGN PER TERM

- | | | | |
|----|----------------|----|-------|
| a. | $5 - (+7)$ | a. | _____ |
| b. | $(-9) - (-10)$ | b. | _____ |

c. $\left(-\frac{4}{5}\right) - \left(+\frac{2}{3}\right)$

c. _____

Section 5. The Properties of Arithmetic

For All Real Numbers a, b, and c.	Addition	Multiplication
The Commutative Property		
The Associative Property		
The Identity Property		
The Inverse Property		
The Distributive Property (for multiplication over addition)		

11. Write the property of Arithmetic that justifies the step in the following proofs.

a. $x(y + z) = xy + xz$ _____

b. $4 \cdot \frac{1}{4} = 1$ _____

c. $6 \cdot 0 = 0$ _____

d. $(x + y) = 1(x + y)$ _____

e. $x + (-x) = 0$ _____

Section 6. Multiplication and Division of Signed Numbers.

12. Rules for Multiplication and Division of Signed Numbers.

a. _____

b. _____

13. When there are more than two factors in a product, or more than two terms in a quotient:

a. _____

b. _____

14. Practice: Simplify the Following.

a. $(-5)(-4)$ _____

b. $(-5)(-10)(-2)$ _____

c. $(-4) \div \left(-\frac{2}{3}\right)$ _____

d. $\left(\frac{3}{8} - \frac{4}{7}\right) - \left(-\frac{1}{2}\right)$ _____

e. $(|-4| - 3) - (3 \cdot |-5|)$ _____

Chapter 1.4 Order of Operations.

Also Known As: _____

P _____

E _____

MD _____

AS _____

1. Perfect Squares Notation:

a. $(-5)^2$ _____

b. -5^2 _____

2. Algebraic Expression Simplification.

*****ORIGINAL NEGATIVE IN SUBSTITUTION**

a. Evaluate $-x^2$ when $x = -3$ and $x = +3$

1. Evaluate: $-5^2 + (-5)^2 - 4^3 + (-4)^3$

5. Evaluate: $8 + 3 \cdot 5^2 - 7$

6. Evaluate: $10 + \{6 - [4(5 - 2)]\}^2$

7. Evaluate: $\frac{6 \div \frac{1}{2} + 5|3 - 7|}{1 + (3 - 5) \div 2}$

8. Evaluate: $-x^3 - xy - y^2$, when $x = -2$ and $y = 5$

Homework Section:

Topic	HW Section(s)	HW Problems
Order of Operations	1.3	29, 37, 43, 51, 67, 83, 105, 109
	1.4	41, 45, 59, 69, 73, 81, 93, 97, 101, 103

In addition, you are invited to do any and all odd numbered problems. The answers are in the back of the text.