

Algebra I

Notes 4.1 Integer Multiplication and Division

Objectives: Multiply and divide negative and positive integers.
Average integers.

Multiplication Patterns

$$\text{positive} \cdot \text{positive} = \underline{\hspace{2cm}}$$

$$\text{positive} \cdot \text{negative} = \underline{\hspace{2cm}}$$

$$\text{negative} \cdot \text{negative} = \underline{\hspace{2cm}}$$

Division Patterns

$$\text{positive} \div \text{positive} = \underline{\hspace{2cm}}$$

$$\text{positive} \div \text{negative} = \underline{\hspace{2cm}}$$

$$\text{negative} \div \text{negative} = \underline{\hspace{2cm}}$$

Find each product:

$$(5)(4) =$$

$$(-6)(2) =$$

$$(3)(-2) =$$

$$(-7)(-1) =$$

Find each quotient:

$$(12) \div (4) =$$

$$(16) \div (-2) =$$

$$(-20) \div (4) =$$

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

Properties of Zero

1. The product of any number and zero is _____.

$$8 \cdot 0 =$$

$$-2 \cdot 0 =$$

$$0 \cdot a =$$

$$0 \cdot -10 =$$

2. Zero divided by a (nonzero) number is _____.

$$0 \div 3 =$$

$$0 \div -4 =$$

$$0 \div 6 =$$

$$0 \div -10 =$$

3. A number divided by zero is _____.

$$3 \div 0 =$$

$$-4 \div 0 =$$

$$6 \div 0 =$$

$$10 \div 0 =$$

NEVER DIVIDE BY ZERO!!!

Averaging Integers

To find the average of a set of integers, add the integers then divide by the number of integers.

$$\text{Average these numbers: } 4, 6, 5, 10, 20 \quad \text{sum} = \quad \div \quad =$$

Is multiplication commutative? $a \cdot b = b \cdot a$?

Is division commutative? $a \div b = b \div a$?

Integer Multiplication and Division

Evaluate.

1. $(-1)(-5) =$ _____ 2. $(-1)(-3) =$ _____
3. $(-11)(-4)$ _____ 4. $(-7) \div (-4)$ _____ 5. $(-42) \div (-3)$ _____
6. $(-35)(22)$ _____ 7. $(-27)(-1.3)$ _____ 8. $(-240) \div (-8)$ _____
9. $(-8) \div [5 + (-3)]$ _____ 10. $(-2.5) \div (-4)$ _____ 11. $(-7)(3)(6)$ _____
12. $(-4488) \div (136)$ _____ 13. $(-5)(5)(5) \div (5)$ _____ 14. $(-2)[5 + (-5)]$ _____

Tell whether the following statements are true or false.

15. The product of two negatives is positive. _____
16. The quotient of two negatives is positive. _____
17. The average of a set of negative numbers is positive. _____
18. Find the average of 57, 92, 65, 29, 44, 50, and 62.

Stephanie opened a savings account with a \$35 deposit. She made a total of 6 additional deposits of \$15 each and withdrawals of \$5, \$10, and \$15.

19. What is the total amount currently in Stephanie's account?

Jenna opened a savings account with a \$50 deposit. She made 3 more deposits of \$15 and withdrawals of \$10 and \$25.

20. What is the total amount currently in Jenna's account?



Evaluate.

1. $(-16)(-5)$ _____ 2. $(-16) - (-5)$ _____ 3. $(-4) - (-5)$ _____
4. $(-16) + (-5)$ _____ 5. $(-34)(-114)$ _____ 6. $(3)(9)(-5)$ _____
7. $(-5) - [9 + (-4)]$ _____ 8. $(-288) \div 36$ _____ 9. $(-200) \div (-4)$ _____
10. $(-4)(-4)(-4)(-4)$ _____ 11. $(-8)(3) \div (-3)$ _____ 12. $(-45)(22)$ _____