Section 2.R.4 Multiplication, Division, and Order of Operations with Integers

Go to Section 2.R.4 Learn mode in Hawkes to follow along!

Multiplication with Integers

Rules for Multiplication with Integers

If a and b are positive integers, then

1. The product of two positive integers is _____

2. The product of two negative integers is _____

3. The product of a positive integer and a negative integer is _____

_____

4. The product of 0 and any integer is 0.

_____

In summary:

a. When the signs are alike, _____

b. When the signs are not alike, _____

Example 3 Multiplying Integers

Multiply.

a. $(-5)(-3)(10)$

b. $(-2)(-2)(-2)(3)$

c. $(-3)(5)(-6)(-1)(-1)$

d. $(-4)^3$

Solution

Exercises

Multiply.

1. $14(2)$

2. $21(3)$

3. $4(-6)$

4. $9(-4)$

5. $-2(-7)$

6. $(-6)(-3)$

7. $0(-1)$

8. $(-3)(7)(-5)$

9. $(-2)(-1)(-7)$

Division with Integers

Meaning of $\frac{a}{b} = x$

For integers a, b, and x (where $b \neq 0$),

_____

Rules for Division with Integers

If a and b are positive integers, then

1. The quotient of two positive integers is _____

2. The quotient of two negative integers is _____

3. The quotient of a positive integer and a negative integer is _____

_____

4. 0 divided by any integer is 0. _____

5. Any integer divided by 0 is _____

In summary:

a. When the signs are alike, _____

b. When the signs are not alike, _____

Example 4 Dividing Integers

Divide.

a. $\frac{35}{5}$

b. $\frac{-35}{-5}$

c. $\frac{35}{-5}$

d. $\frac{-35}{5}$

Exercises

Divide.

10. $\frac{20}{4}$

11. $\frac{18}{3}$

12. $\frac{-18}{6}$

13. $\frac{-28}{7}$

14. $\frac{14}{-7}$

15. $\frac{50}{-5}$

16. $\frac{35}{-7}$

17. $\frac{0}{8}$

18. $\frac{56}{0}$

Order of Operations with Integers

Rules for Order of Operations

1. Simplify within _____ _____(If there are more than one pair of grouping symbols, start with _____ _____)
2. Evaluate any _____
3. Moving from left to right, perform any _____
4. Moving from left to right, perform any _____

Example 10 Using the Order of Operations with Integers

Simplify: $9-11\left[\left(3-5^2\right)\div|-2|+5\right]$

Solution

Exercises

Simplify each expression using the order of operations.

19. $-10^2 - 4(-8) - 5^2$

20. $4^2 \div (-8)(-2) + 6(-15 + 3 \cdot 5)$

21. $5^2 \div (-5)(-3) - 2(4 \cdot 3)$

22. $\left[15 + 5\left(-2^3 - 7\right)\right] \div 10$

23. $\left[20 - 4\left(-3^2 - 6\right)\right] \div 8$

24. $5^2 - 6 \cdot |-3| + 2\left(5 + 2^3\right)$

25. $(-6)^2 - 4 \cdot |-2| + 5\left(7 - 3^2\right)$