

You will need your clickers for today's lesson. We will start with the warm-up skills check questions.

1-3

Multiplying and Dividing Integers

Check Skills You'll Need

1. Vocabulary Review

Two numbers that are *additive inverses* always have a sum of ?.

Find each sum.

2. $7 + (-3)$

3. $-4 + 9$

4. $-22 + (-13)$

5. $-17 + 17$

GO for Help
Lesson 1-2

What You'll Learn

To multiply and divide integers and to solve problems involving integers

Why Learn This?

Balloonists watch their altitude when they fly. You can multiply integers to find change in altitude.

A balloon descends at a rate of 4 ft/min for 3 min. To multiply integers, think of multiplication as repeated addition.

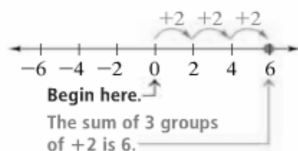
$$3(-4) = (-4) + (-4) + (-4) = -12 \quad \leftarrow \text{The balloon descends 12 ft.}$$

You can use number lines to multiply integers.

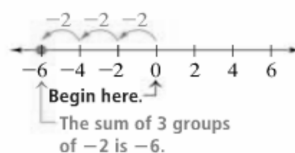


You can use number lines to multiply integers.

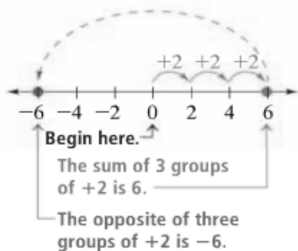
$3(2)$ means three groups of 2.



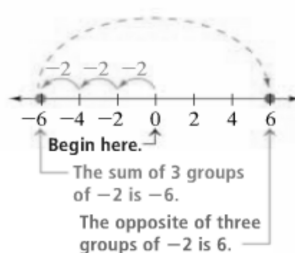
$3(-2)$ means three groups of -2 .



$-3(2)$ is the opposite of three groups of 2.



$-3(-2)$ is the opposite of three groups of -2 .



This pattern suggests the rules for multiplying integers.

Copy this in your notes:

KEY CONCEPTS Multiplying Integers

The product of two integers with the same sign is positive. The product of two integers with different signs is negative.

Examples $-3(-2) = 6$ $3(-2) = -6$

EXAMPLE Multiplying Integers

1 Find each product.

a. $5(3) = 15$ ← same signs; positive product → b. $-5(-3) = 15$
c. $5(-3) = -15$ ← different signs; negative product → d. $-5(3) = -15$

1 EXAMPLE Find each product.

a. $3(7) = 21$ ← Factors have the same sign, positive product.

b. $3(-7) = -21$ ← Factors have different signs, negative product.

c. $-3(7) = -21$ ← Factors have different signs, negative product.

d. $-3(-7) = 21$ ← Factors have the same sign, positive product.



Solve: $-4(-7)$

(A) 28

(B) -28

(C) 11

(D) -11



A cave explorer descends at a rate of 6 meters a minute. Which expression CANNOT be used to find the explorer's depth after 4 minutes?

- A $-6 - 6 - 6 - 6$
- B $-6/4$
- C $-6(4)$
- D $(-6) + (-6) + (-6) + (-6)$



The product of two integers is zero. What do you know about the value of at least one of the integers?

- A At least one number has to be zero because of the Distributive Property
- B At least one number has to be zero because of the Zero Property of Multiplication
- C At least one number has to be one because of the Identity Property of Multiplication
- D At least one number has to be one because of the Zero Property of Multiplication



Solve $-7 \times ? = -28$

- A 11
- B -11
- C 4
- D -4



Solve $-48 \div ? = 6$

(A) -9

(B) 8

(C) 9

(D) -8



Solve: $? / -4 = -20$

(A) 100

(D) -80

(B) 80

(E) 5

(C) -100

(F) -5



Solve: $-2(-13)$

(A) 15

(B) -15

(C) 26

(D) -26



Solve $22 \div (-11)$

(A) -2

(B) 2

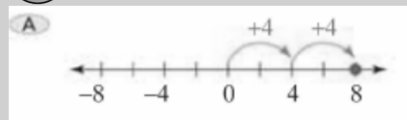
(C) 33

(D) -33

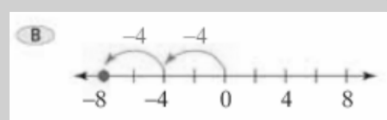


Which model best represents the expression $2 \times (-4)$?

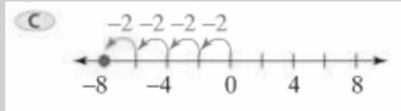
(A)



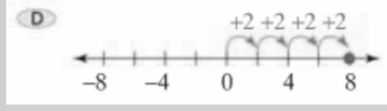
(B)



(C)



(D)



(C)

(D)

Here are some problems for additional practice.

Find each product.

10. -5×4

11. $12(3)$

12. $6(-6)$

13. $-7 \cdot (-3)$

14. $-21 \times (-4)$

15. $3(-33)$

16. $-12(-17)$

17. $-35 \cdot 24$

18. $-102(6)$

Problems for additional practice.

Find each quotient.

19. $\frac{36}{12}$

20. $\frac{14}{-2}$

21. $-42 \div 3$

22. $-80 \div -20$

23. $-8 \overline{)64}$

24. $\frac{-27}{-9}$

25. $96 \div (-12)$

26. $\frac{-195}{13}$

27. $\frac{-242}{-1}$

You can power down your clickers and put them away now.

