


Please get your clickers and prepare to log in.

1-1

Comparing and Ordering Integers

What You'll Learn

To compare and order integers and to find and add opposites

 **New Vocabulary** integers, opposites

Why Learn This?

Most shipwrecks lie under water. You can use integers to describe distances above and below sea level.

Integers are the set of positive whole numbers, their opposites, and zero. The wreck of *La Belle*, a ship from the 1600s, lies 12 feet below sea level off the coast of Texas. You can use -12 to describe the wreck's depth.

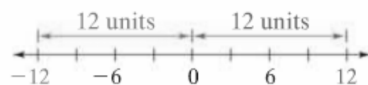


Two numbers that are the same distance from 0 on a number line, but in opposite directions, are **opposites**. You can use integers to find opposites.

Two numbers that are the same distance from 0 on a number line, but in opposite directions, are **opposites**. You can use integers to find opposites.

EXAMPLE Finding an Opposite

- 1 Find the opposite of -12 .



- 2 The opposite of -12 is 12, because -12 and $+12$ are both twelve units from 0, but in opposite directions.

Talk with your table partners about these:

What is the opposite of 23?

What is the opposite of one-half?

What is the opposite of (-15)?



Find the opposite of -8

A 8

B $-1/8$

C $1/8$

D -8



Find the opposite of 13

A 31

B -31

C 13

D -13

The sum of a number and its opposite is zero.

This simple sentence is really a big deal. Anytime you can match up a number with its opposite when adding, they cancel out and give you a sum of zero.

A number and its opposite are called **additive inverses**.

EXAMPLE

Adding Opposites

2

What is the sum of -3 plus 3 ?

-3 and 3 are opposites, so they are additive inverses.

$$-3 + 3 = 0$$

Talk with your table partners about not only the answer to this problem, but also WHY you got your answer.

2 Find the sum of -5 and 5 . 0



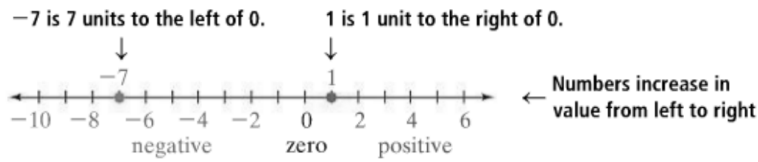
**What is the opposite of -2?
Text in your number answer
now.**

Text in your answer now.

You can compare and order integers by graphing.

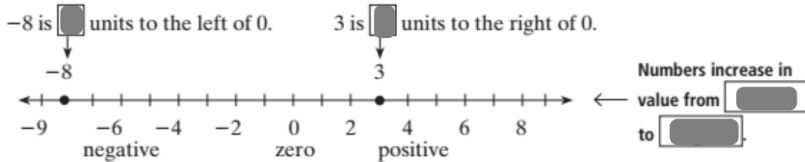
EXAMPLE Comparing Integers

3 Compare -7 and 1 using $<$, $=$, or $>$.

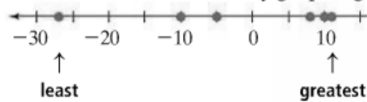


Since -7 is to the left of 1 on the number line, $-7 < 1$.

3 **Comparing Integers** Compare 3 and -8 using $<$, $=$, or $>$.



Since 3 is to the of -8 on the number line, 3 -8 .

EXAMPLE**Ordering Integers****Lowest October Temperatures****4****Climate** Order the cities on the map from coldest to warmest by graphing.

Coldest to warmest:
Fairbanks, Nome, Anchorage,
Valdez, Kodiak, Juneau.



Order the numbers 3, -1, -4, 2 from least to greatest

A -4, -1, 2, 3

B 3, 2, -1, -4

C -1, 2, 3, -4

D -4, 2, 3, -1



How are integers different from whole numbers?

A Integers do not include negative numbers.

B Whole numbers include fractions.

C Whole numbers do not include negative numbers.

D Integers include zero.



Which number in this pair is farther away from zero?

4, -5

A 4

B -5

C Not given

Extra practice

Find the opposite of each number. You may find a number line helpful.

12. -1 13. -8 14. 15 15. 11 16. 90
17. -45 18. 20 19. -20 20. -123 21. 160

Extra practice

Compare using $<$, $=$, or $>$.

32. $0 \blacksquare -2$ 33. $-6 \blacksquare -3$ 34. $-14 \blacksquare 14$ 35. $-23 \blacksquare 0$
36. $-4 \blacksquare -5$ 37. $17 \blacksquare -18$ 38. $7 \blacksquare -12$ 39. $5 \blacksquare -1$

Extra practice

Order the numbers from least to greatest.

40. $-4, 8, -2, -6, 3$

41. $-2, 0, 7, -1, -5$

42. $2, -3, -7, 1, 10$