Using Multiple Representations to Introduce Integers

Sample Pages

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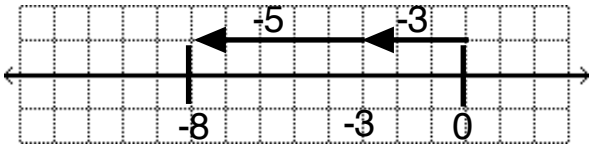
Addition of Integers

Represent Using Tiles

8 negative tiles

Represent Using a Number Line



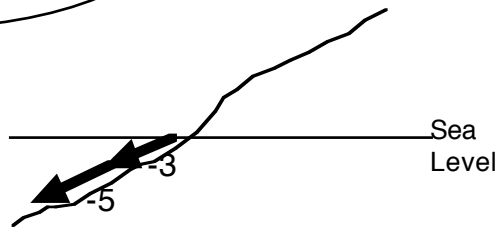
moved negative 3 then negative 5 and end at negative 8

$-3 + -5$

Problem

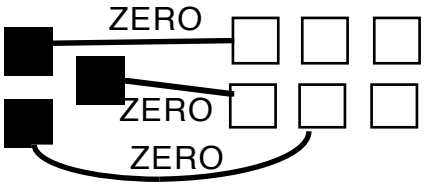
If you owe 3 dollars and borrow 5 dollars you will end up owing 8 dollars

Represent Using Money



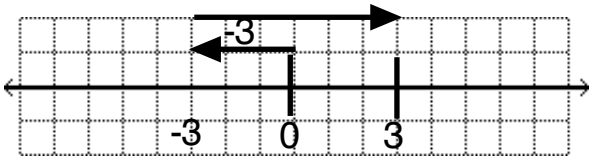
Represent Vertically

Represent Using Tiles



3 pairs and they equal 0 that leaves 3 positive tiles

Represent Using a Number Line



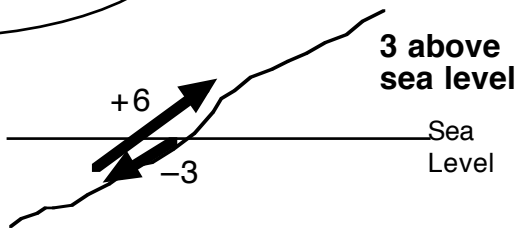
moved negative 3 then positive 6 and end at positive 3

$-3 + 6$

Problem

If you owe 3 dollars and get 6 dollars you will end with 3 dollars

Represent Using Money



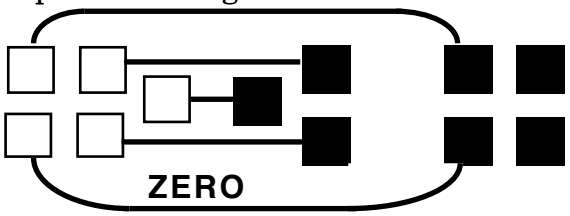
3 above sea level

Represent Vertically

For each representation, clearly label the answer.

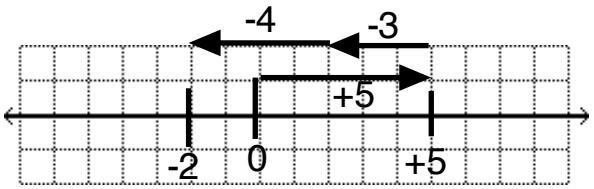
Addition of Integers

Represent Using Tiles



Only 2 negative tiles are left

Represent Using a Number Line



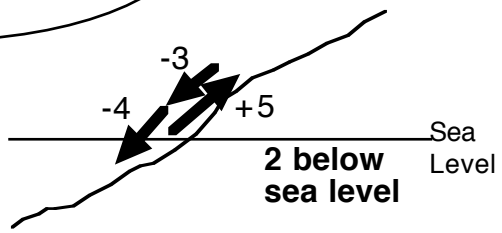
moved positive 5 then negative 3 then negative 4 and end at negative 2

$5 + -3 + -4$

Problem

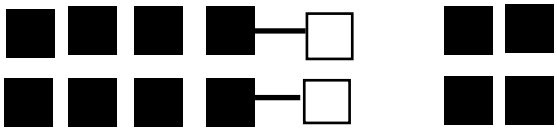
If you have 5 dollars and spend 3 dollars then spend another 4 dollars you will end up owing 2 dollars

Represent Using Money



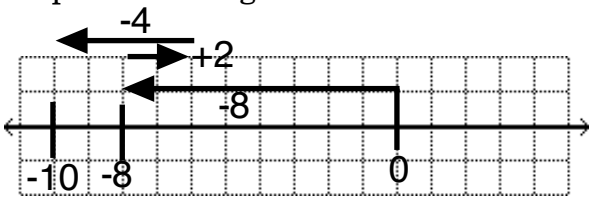
Represent Vertically

Represent Using Tiles



10 negative tiles are left

Represent Using a Number Line

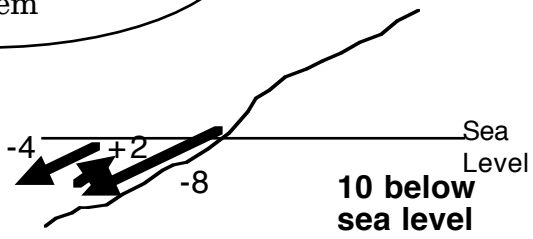


$-8 + 2 + -4$

Problem

If you owe 8 dollars and make 2 dollars but then borrow 4 more dollars you will end up owing 10 dollars

Represent Using Money



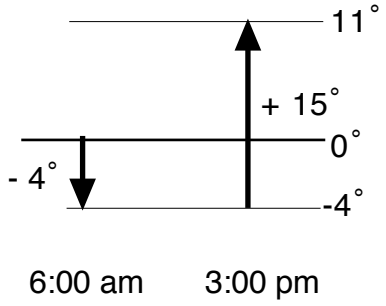
Represent Vertically

For each representation, clearly label the answer.

Word Problems

1) At 6:00am the temperature was 4˚ below zero. By 3:00pm the temperature had risen 15˚. What was the temperature at 3:00pm?

Represent the problem using a picture



Write a math expression of the problem

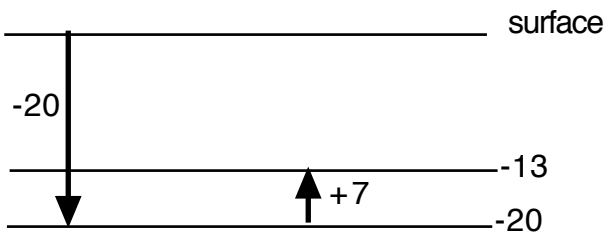
- 4 + 15 = 11

Answer the question in a complete sentence.

At 3:00 pm the temperature will be 11˚ above zero.

2) Sabrina went scuba diving. She descended 20 meters below the surface and then ascended 7 meters. How far below the surface was she?

Represent the problem using a picture



Write a math expression of the problem

-20 + 7 = -13

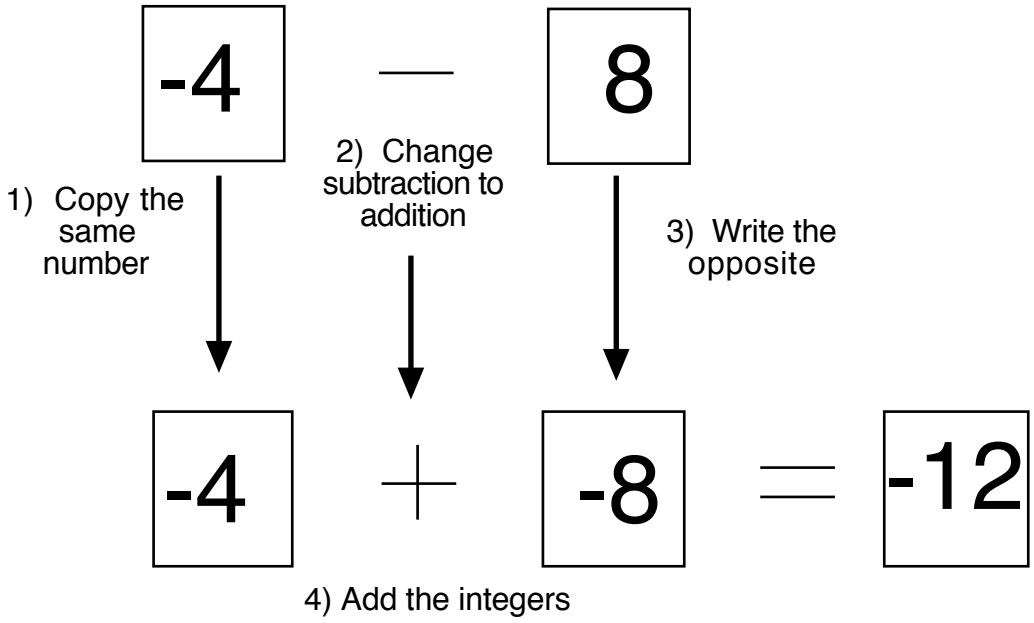
Answer the question in a complete sentence.

After ascending 7 meter she was at 13 meters below the surface.

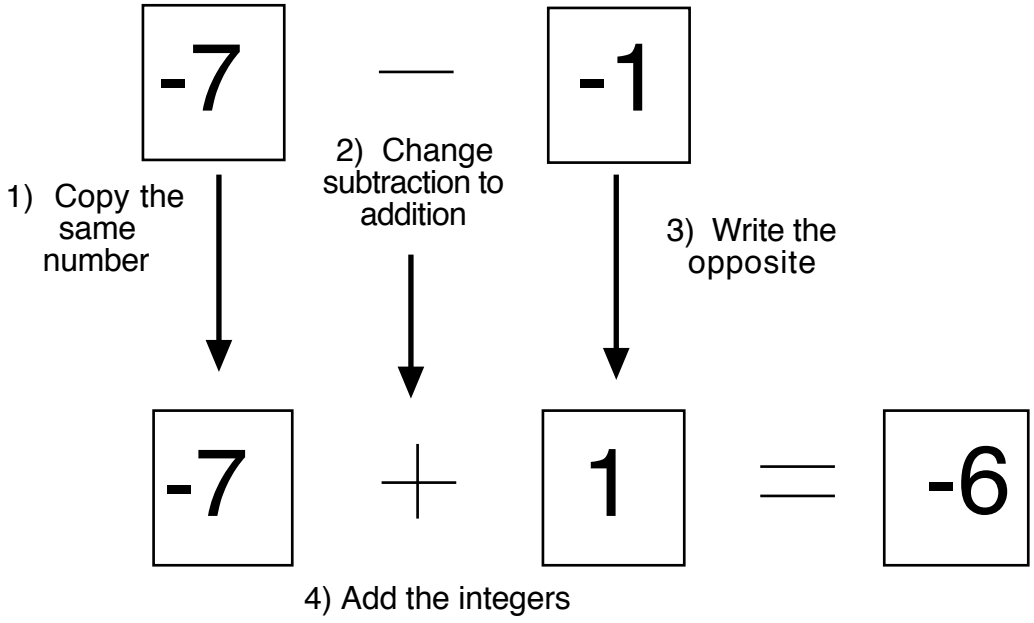
Subtraction of Integers

1-2-3-4 Method

3)



4)



Multiplication of Integers

Discover the Rules!

Rule #1

$-3 \cdot 4 = -12$

$5 \cdot -2 = -10$

$-6 \cdot 3 = -18$

$2 \cdot -3 = -6$

$1 \cdot -3 = -3$

$-10 \cdot 4 = -40$

Study the problems.
What patterns do you notice?

These are multiplication problems.

All answers are negative.

One number is positive and one is negative.

Describe the rule and give two examples.

A positive number multiplied by a negative number always equal a negative answer. So the answer is negative 12 if negative 3 is multiplied by positive 4 or if positive 3 is multiplied by negative 4.

Rule #2

$-3 \cdot -4 = 12$

$5 \cdot 2 = 10$

$-6 \cdot -3 = 18$

$-2 \cdot -3 = 6$

$1 \cdot 3 = 3$

$-10 \cdot -4 = 40$

Study the problems.
What patterns do you notice?

These are multiplication problems.

All answers are positive.

both numbers are positive or both are negative.

Describe the rule and give two examples.

If two positive or two negative numbers are multiplied the answer is positive. So the answer is positive 12 if positive 3 is multiplied by positive 4 or if negative 3 is multiplied be negative 4.