


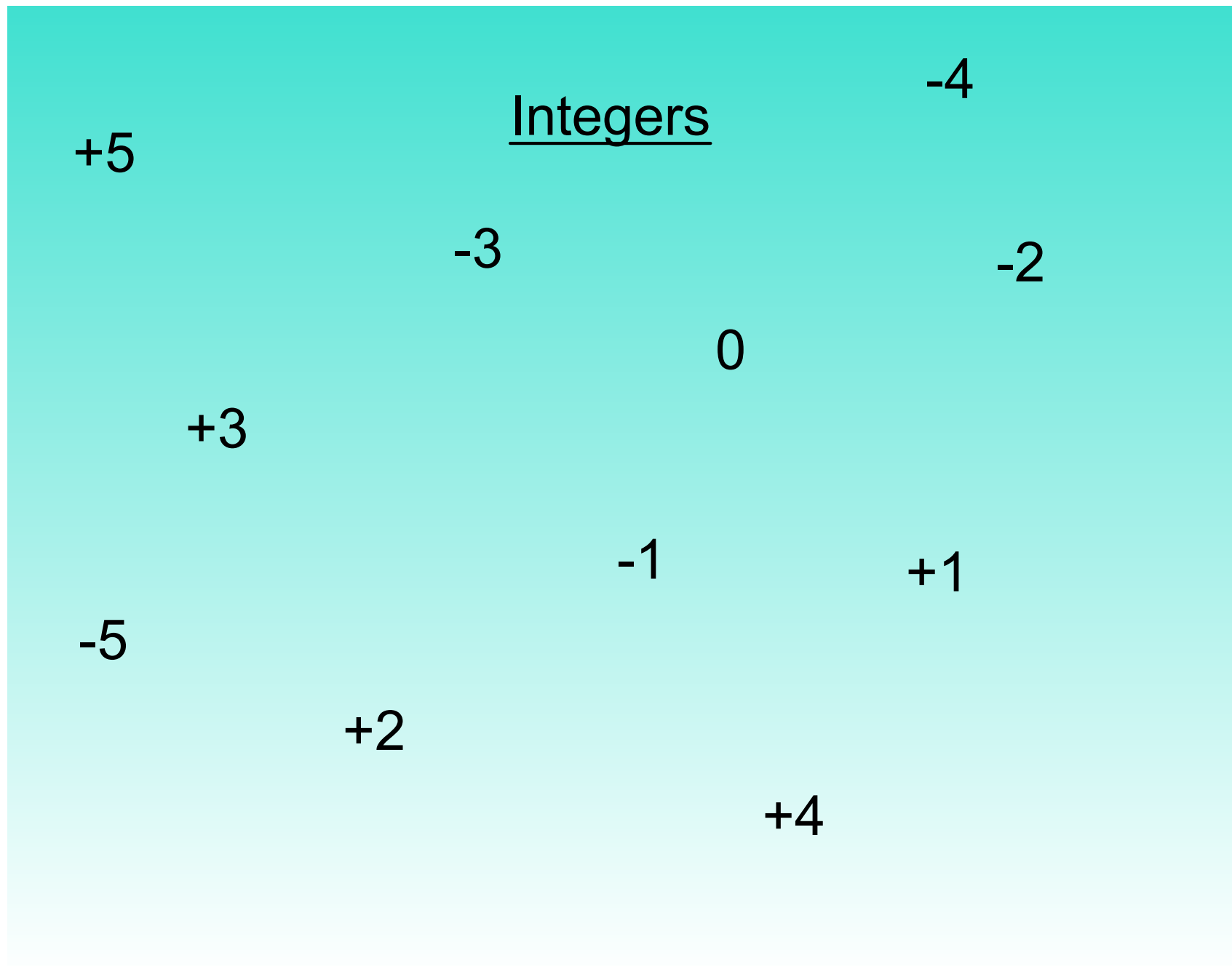
1)  $10 + 27$  37  
2)  $54 - 14$  40  
3)  $\frac{1}{2}$  of 26 13  
4)  $2000 \div 10$  200  
5)  $35 \div 5 \times \boxed{7}$   
6)  $19 \times 10$  190 ;  
7)  $140 \times 2$  280  
8)  $5 \times 25$  125  
9)  $12012 \div 6$  2002  
10)  $325 \div 25$  13



The logo features the text "I Love MATH" in a stylized font. The "I" is blue, "Love" is written as a red heart, and "MATH" is in black with white outlines. Small mathematical symbols like a plus sign, multiplication sign, and division sign are interspersed between the letters of "MATH".

$16016 \div 4$





# Where can we find integers in real life?

Temperature

Money

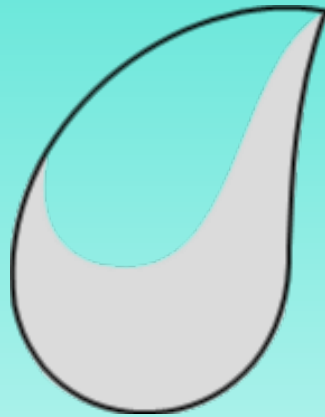
Depth

Golf

Increases / Decreases

Losing Weight

Any more ideas?



# Examples

Writing the appropriate integer for the given situation

1) Joe owes \$48  $-48$

2) A diver went 50 feet below the surface  
 $-50$

3) A golfer scored par

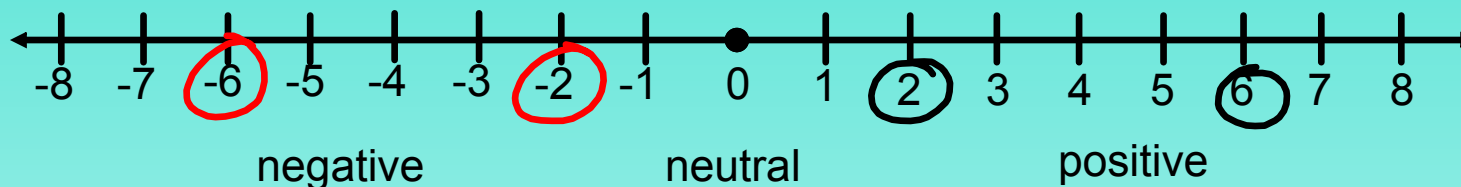
0

4) The temperature is 14 degrees Celsius above 0  $+14$

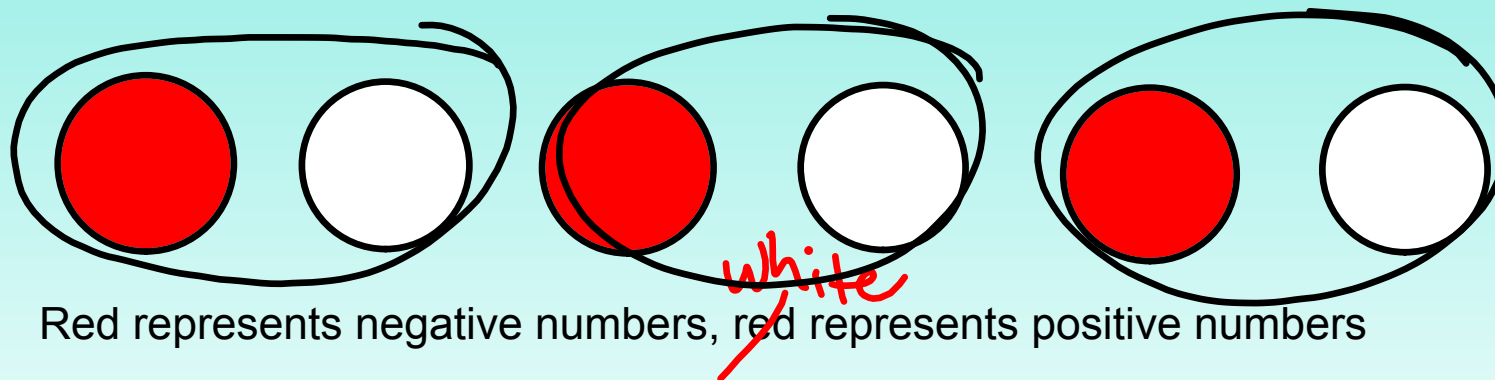
5) My dog gained 7 pounds  $+7$

# 2 Methods for Visualizing Integers

## Number Line



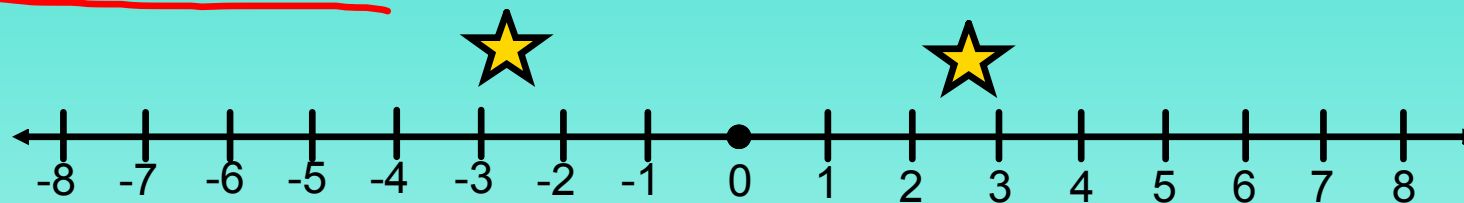
## Coloured Counters



Red represents negative numbers, ~~red~~ represents positive numbers

## Opposite Integers Create a Zero Pair

~~X~~ On a number line, **opposite integers** are the same distance from 0, and are on opposite sides from 0 (one is negative, and one is positive).



-3 and +3

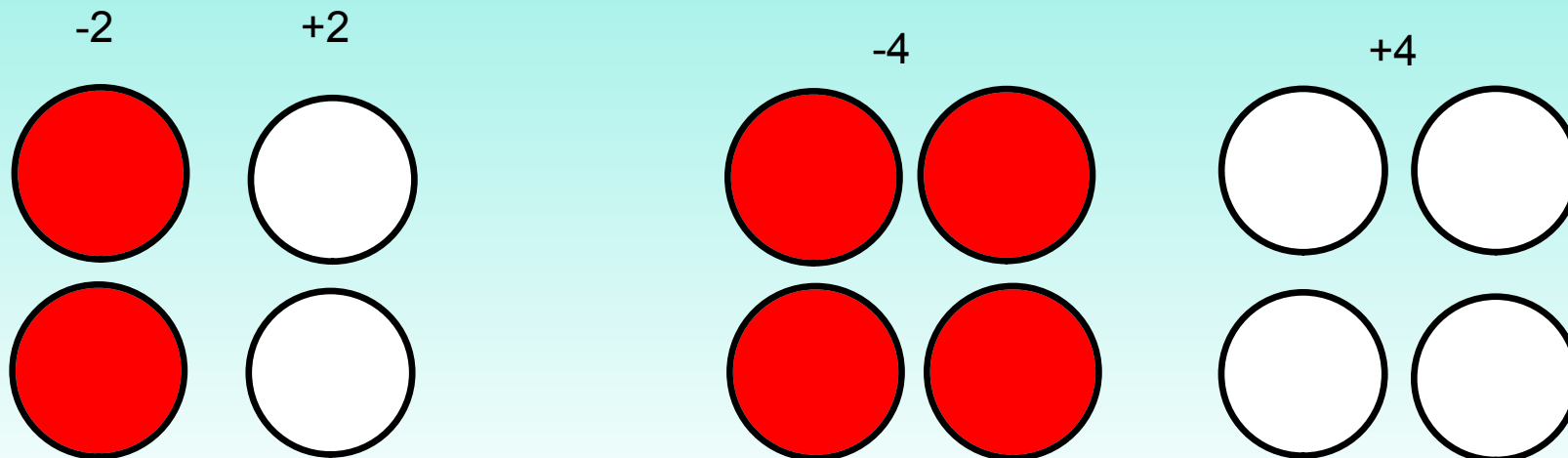
-5 and +5

-8 and +8

-1.5 and +1.5

-100 and +100

We can also form **zero pairs** by matching up our coloured counters



## 2.1

## Representing Integers

**Focus** Use coloured tiles to represent integers.

One of the coldest places on Earth is Antarctica, with an average annual temperature of about  $-58^{\circ}\text{C}$ .

This is a **negative integer**.



One of the hottest places on Earth is Ethiopia, with an average annual temperature of about  $+34^{\circ}\text{C}$ .

This is a **positive integer**.



We can use yellow tiles to represent positive integers and red tiles to represent negative integers.

We can use yellow tiles to represent positive integers and red tiles to represent negative integers.

One yellow tile  can represent +1.

One red tile  can represent -1.

A red tile and a yellow tile combine to model 0:  $\left. \begin{array}{l} \text{red tile} \quad -1 \\ \text{yellow tile} \quad +1 \end{array} \right\}$  We call this a **zero pair**.



You will need coloured tiles.




- One of you uses 9 tiles and one uses 10 tiles.  
You can use any combination of red and yellow tiles each time.  
How many different integers can you model with 9 tiles?  
How many different integers can your partner model with 10 tiles?
- Draw a picture to show the tiles you used for each integer you modelled.  
Circle the zero pairs. Write the integer each picture represents. How do you know?



**Connect**

We can model any integer in many ways.

Each set of tiles below models  $+5$ .

- 
- 
- 

Each pair of 1 yellow tile and  
1 red tile makes a zero pair.  
The pair models 0.

**Example**

Use coloured tiles to model  $-4$  in three different ways.

**A Solution**

Start with 4 red tiles to model  $-4$ .

Add different numbers of zero pairs.

Each set of tiles below models  $-4$ .



Adding 4 zero pairs does not change the value.



Adding 2 zero pairs does not change the value.



Adding 7 zero pairs does not change the value.

## Practice

1. Write the integer modelled by each set of tiles.



2. Draw yellow and red tiles to model each integer in two different ways.

a)  $-6$

b)  $+7$

c)  $+6$

d)  $-2$

e)  $+9$

f)  $-4$

g)  $0$

h)  $+10$

### 4. Assessment Focus

a) Choose an integer between  $-9$  and  $+6$ .

Use coloured tiles to model the integer.

b) How many more ways can you find to model the integer with tiles?

Create a table to order your work.

c) What patterns can you find in your table?

d) Explain how the patterns in your table can help you model an integer between  $-90$  and  $+60$ .

4. **Assessment Focus**

- a) Choose an integer between  $-9$  and  $+6$ .  
Use coloured tiles to model the integer.
- b) How many more ways can you find to model the integer with tiles?  
Create a table to order your work.
- c) What patterns can you find in your table?
- d) Explain how the patterns in your table can help  
you model an integer between  $-90$  and  $+60$ .

6. Write the integer suggested by each of the following situations.

Draw yellow or red tiles to model each integer.

Explain your choice.

- a) You move your game piece forward 9 squares on the game board.
- b) You ride down 5 floors on an elevator.
- c) You walk up 11 stairs.
- d) The temperature drops  $9^{\circ}\text{C}$ .
- e) You climb down 7 rungs on a ladder.

7. Write two integers suggested by each of the following situations.
- a) You deposit \$100 in your bank account, then pay back your friend \$20.
  - b) While shopping in a large department store, you ride the elevator up 6 floors, then down 4 floors.
  - c) The temperature rises  $12^{\circ}\text{C}$  during the day, then falls  $8^{\circ}\text{C}$  at night.



