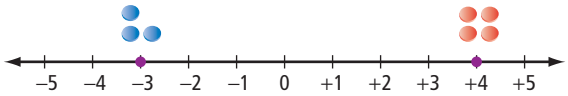
Get Ready

Represent Integers

The **integers** include positive and negative whole numbers and zero.

The diagram shows the integers +4 and −3 represented by points on a number line and by coloured disks. These coloured disks are called integer chips. Four red chips represent the positive integer +4. Three blue chips represent the negative integer −3.



1. Identify the integer represented by each group of chips.

a) 

b) 

c) 

d) 

e) 

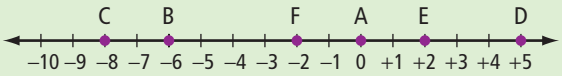
f) 

2. Represent each integer using integer chips. Draw a diagram to show each answer.

a) +2 **b)** +6 **c)** −4

d) +7 **e)** −6 **f)** −8

3. Identify the integer represented by each point on the number line.



4. Represent each integer on a number line.

a) +1 **b)** −1 **c)** 0

d) +5 **e)** −4 **f)** +8

Represent Quantities With Integers

If you have $4, this amount can be represented by the integer +4.

If you spend $3, this amount can be represented by the integer −3.

5. Use an integer to represent each quantity. Explain your reasoning.

a) a height of 5 m above the ground

b) a depth of 6 m below the ocean

c) spending $8 on food

d) growing 3 cm taller

e) a temperature of 4°C above freezing

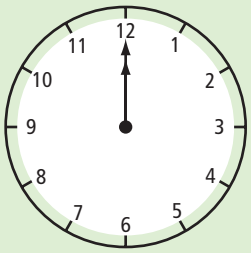
f) taking 2 steps backward

6. Suppose a friend gives you $5. Use an integer to describe what happens

a) from your point of view

b) from your friend's point of view

7. Suppose that midnight on December 31 is "zero hour." Times before zero hour on December 31 are negative. Times after zero hour on January 1 are positive. Copy and complete the table. The first line is completed for you.



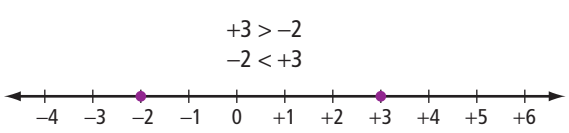
Time	Date	Number of Hours From Zero Hour
9:00 p.m.	December 31	−3
6:00 a.m.	January 1	
4:00 p.m.	December 31	
12:00 noon	January 1	
6:00 p.m.	January 1	
6:00 a.m.	December 31	

Compare and Order Integers

You can compare two integers using the symbols shown in the table.

Symbol	Meaning	Example
>	is greater than	$+3 > -2$
<	is less than	$-2 < +3$
=	equals	$-5 = -5$

On a horizontal number line, a greater integer is to the right of a lesser integer.



On a horizontal number line, positive integers are to the right of 0, negative integers are to the left of 0.

8. Compare the integers by replacing each ■ with >, <, or =. Verify each answer by plotting the integers on a horizontal number line.

a) $+2$ ■ $+2$ **b)** $+5$ ■ 0

c) -3 ■ 0 **d)** $+7$ ■ $+6$

e) -1 ■ $+1$ **f)** -2 ■ -5

9. Use >, <, or = to compare the two integers represented by each situation. Explain your reasoning.

a) the heights of two cliffs that reach 7 m and 9 m above sea level

b) a daily high temperature of +12°C and a daily low temperature of −3°C

c) Charlotte spent $5 on Monday. She also spent $5 on Tuesday.

10. Arrange the following integers in ascending order (from least to greatest).

a) $+3, +1, +8, 0, +6, -1$

b) $-2, -7, +2, -6, 0, -3$

11. Arrange the following integers in descending order (from greatest to least).

a) $-4, +2, +8, -8, -6, +1$

b) $0, -9, +5, +2, -7, +3$