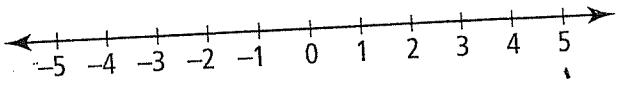
Get Ready

Name: _____ Date: _____

Represent Quantities With Integers

Integers include positive and negative whole numbers and zero.

An integer is any of the numbers $-3, -2, -1, 0, +1, +2, +3, \ldots$.



Integer chips are coloured disks that represent integers. A ⊕ represents $+1$; and ⊖ represents -1.

- If you climb 5 steps, this amount can be represented by the integer $+5$.
- If you descend 10 steps, this amount can be represented by the integer -10.

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

a) an increase of 3%

b) 20 m below sea level

2. Suppose you win a prize of $15. Use an integer to describe what happens

a) from your point of view

b) from the point of view of the person giving the prize

Adding Integers

A **zero pair** includes one ⊕ and one ⊖.
A zero pair represents zero.
Integer addition can be modelled using integer chips or diagrams.


zero pair

3. Use the diagram to complete each addition statement.

a) ⊕⊕⊕⊕⊕⊕⊕ ⊖⊖⊖⊖

$(+7) + (-4) =$ _____

b) ⊖⊖⊖⊖⊖⊖⊖⊖ ⊕⊕⊕

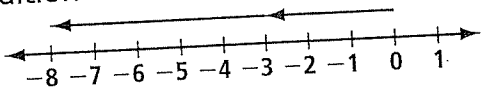
$(-8) + (+3) =$ _____

c) ⊕⊕⊕⊕ ⊖

$(+4) + (-1) =$ _____

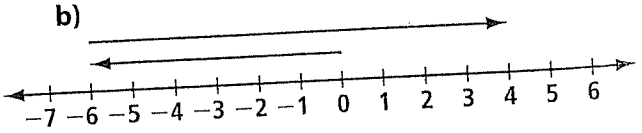
4. Use the diagram to complete each addition statement.

a)



$(-3) + (-5) =$ _____

b)



$(-6) + (+10) =$ _____

5. Complete each addition statement.

a) $(+4) + (+5) =$ _____

b) $(-7) + (-7) =$ _____

c) $(+6) + (-9) =$ _____

d) $(-2) + (+8) =$ _____

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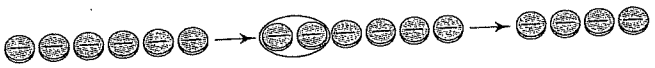
Subtracting Integers

Integer subtraction can be modelled using integer chips or diagrams.
Any integer subtraction can be completed by adding the opposite integer.

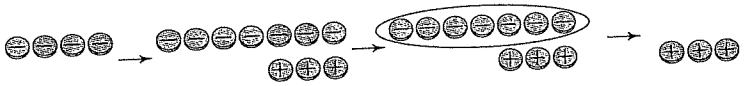
$(+5) - (-4) = (+5) + (+4)$
$= +9$

6. Use the diagrams to complete the subtraction statements.

a)  $(+7) - (+4) =$ _____

b)  $(-6) - (-2) =$ _____

c)  $(-2) - (+6) =$ _____

d)  $(-4) - (-7) =$ _____

Order of Operations

The correct sequence of steps for a calculation follows the **order of operations** shown.

$8 \div 4 + (3 + 2) \times 6 - 7$
$= 8 \div 4 + 5 \times 6 - 7$
$= 2 + 30 - 7$
$= 25$

Do brackets first.
Multiply and divide from left to right.
Add and subtract from left to right.

7. Calculate. Show your thinking.

a) $8 + 6 \times 5 - 1$

b) $3 \times (7 - 2) + 16 \div 4$

c) $24 \div 6 + 18 \div 2$

d) $(4 + 2) \div 6 + 6 \times 3 - 4$