

# 8. [Integer +,-]

## Skill 8.1 Adding integers.

MM9 1 1 2 2 3 3 4 4  
MM10 1 1 2 2 3 3 4 4

- Use these sign rules:

If same:  $++ = +$

Example:  $(-9) + (+3)$   
 $= -9 + 3$  *(++=+)*  
 $= -6$

If different:  $+ - = -$

Example:  $(-9) + (-3)$   
 $= -9 - 3$  *(+--=-)*  
 $= -12$

- Subtract the numbers and keep the sign in front of the greatest integer.

- Add the numbers and keep the minus sign.

Hint: The sign of a number should not be confused with the operations of addition or subtraction.

$$(+5) + (-8) = 5 + (-8) = -3$$

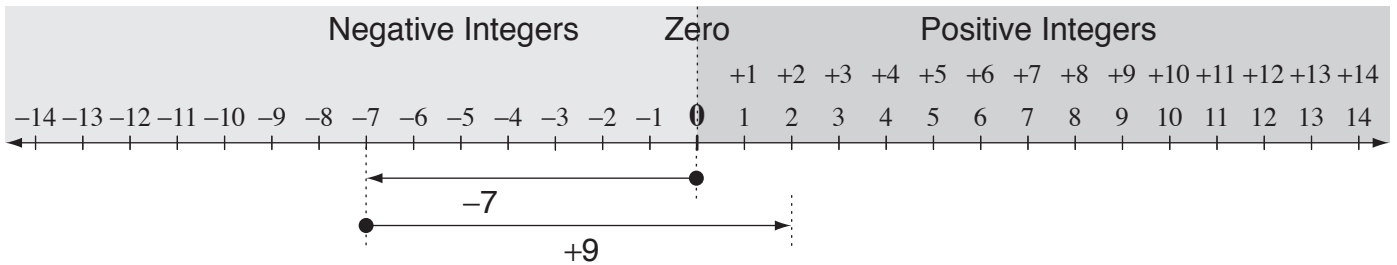
No sign so +5 (positive 5)

Negative sign attached to 8

Hint: Every number has a sign attached to it, so if there is no sign, the number is positive.

- The sign can also be visualised using a number line.

Hint: '-' means move left or backwards and '+' means move right or forwards.



Q.  $(-7) + (+9) =$

A.  $(-7) + (+9)$   
 $= -7 + 9$  *(++=+)*  
 $= 2$  *(start at -7, move forward 9)*

a)  $(+5) + (-7) =$  *(+--=-)*  
 $= 5 - 7$  *(subtract, keep "-")*  
 $= \boxed{-2}$

b)  $(-4) + (-8) =$   
 $= -4$   $= \boxed{\phantom{00}}$

c)  $(-5) + (-3) =$   
 $= \phantom{00}$   $= \boxed{\phantom{00}}$

d)  $(+2) + (-8) =$   
 $= \phantom{00}$   $= \boxed{\phantom{00}}$

e)  $(+4) + (-6) =$   
 $= \phantom{00}$   $= \boxed{\phantom{00}}$

f)  $(-7) + (+4) =$   
 $= \phantom{00}$   $= \boxed{\phantom{00}}$

g)  $(-3) + (+6) =$   
 $= \phantom{00}$   $= \boxed{\phantom{00}}$

h)  $(+5) + (-8) =$   
 $= \phantom{00}$   $= \boxed{\phantom{00}}$

i)  $(+2) + (-14) =$   
 $= \phantom{00}$   $= \boxed{\phantom{00}}$

j)  $(-16) + (+9) =$   
 $= \phantom{00}$   $= \boxed{\phantom{00}}$

k)  $(-15) + (-8) =$   
 $= \phantom{00}$   $= \boxed{\phantom{00}}$

l)  $2 + (-7) =$   
 $= \phantom{00}$   $= \boxed{\phantom{00}}$

## Skill 8.2 Subtracting integers.

MM9 1 2 3 4  
MM10 1 2 3 4

- Use these sign rules:

**If same:**  $-- = +$

Example:  $(-9) - (-3)$   
 $= -9 + 3$   
 $= -6$

**If different:**  $- + = -$

Example:  $(-9) - (+3)$   
 $= -9 - 3$   
 $= -12$

- Subtract the numbers and keep the sign in front of the greatest integer.

- Add the numbers and keep the minus sign.

*Hint: The sign of a number should not be confused with the operations of addition or subtraction.*

$$(+5) - (-8) = 5 - (-8) = 5 + 8 = 13$$

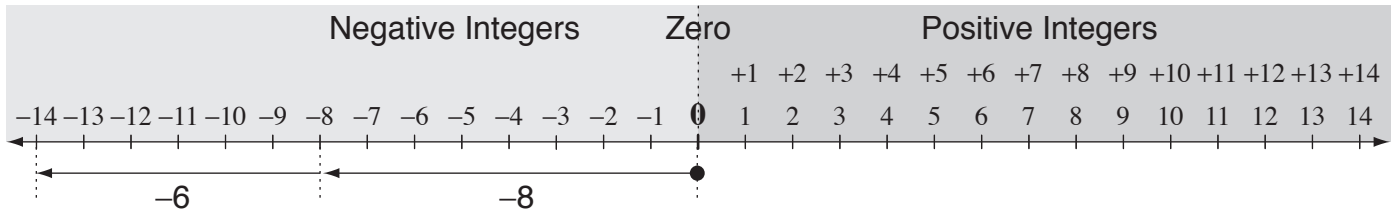
No sign so +5 (positive 5)

Negative sign attached to 8

*Hint: Every number has a sign attached to it, so if there is no sign, the number is positive.*

- The sign of the result of the subtraction can also be visualised using a number line.

*Hint: '-' means move left or backwards and '+' means move right or forwards.*



**Q.**  $(-8) - (+6) =$

**A.**  $(-8) - (+6)$   
 $= -8 - 6$   
 $= -14$

**a)**  $(-5) - (-6) =$

$= -5 + 6 = \boxed{1}$

**b)**  $(+3) - (+9) =$

$= 3 - 9 = \boxed{\phantom{00}}$

**c)**  $(+7) - (+8) =$

$= \phantom{00} - \phantom{00} = \boxed{\phantom{00}}$

**d)**  $(+7) - (-7) =$

$= \phantom{00} - \phantom{00} = \boxed{\phantom{00}}$

**e)**  $(-3) - (-2) =$

$= \phantom{00} - \phantom{00} = \boxed{\phantom{00}}$

**f)**  $(-4) - (-8) =$

$= \phantom{00} - \phantom{00} = \boxed{\phantom{00}}$

**g)**  $(+6) - (-7) =$

$= \phantom{00} - \phantom{00} = \boxed{\phantom{00}}$

**h)**  $(+4) - (-9) =$

$= \phantom{00} - \phantom{00} = \boxed{\phantom{00}}$

**i)**  $(-19) - (+11) =$

$= \phantom{00} - \phantom{00} = \boxed{\phantom{00}}$

**j)**  $(-16) - (+9) =$

$= \phantom{00} - \phantom{00} = \boxed{\phantom{00}}$

**k)**  $(-12) - (-15) =$

$= \phantom{00} - \phantom{00} = \boxed{\phantom{00}}$

**l)**  $-6 - -3 =$

$= \phantom{00} - \phantom{00} = \boxed{\phantom{00}}$

### Skill 8.3 Adding and subtracting integers.

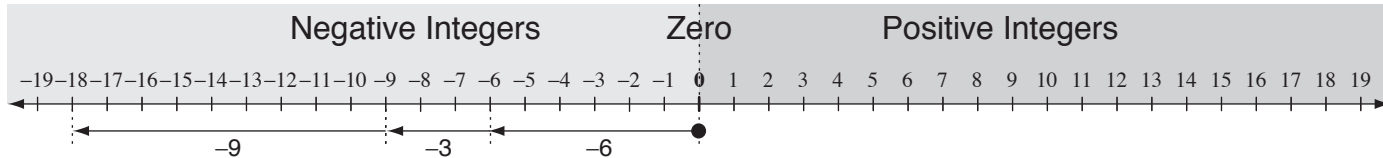
MM9 11 22 33 44  
MM10 11 22 33 44

- Add and/or subtract from left to right.
- Use these sign rules:

If same:  $++ = +$   
 $-- = +$

If different:  $+- = -$   
 $-+ = -$

- The sign of the result can also be visualised using a number line.



**Q.**  $(-6) - (+3) - (+9) =$

**A.**  $(-6) - (+3) - (+9)$

$= -6 - 3 - 9$

$= -9 - 9$

$= -18$

$-+ = -$

work from left to right

start at  $-9$ , move backward 9 more

**a)**  $(-5) + (-6) + (+9) =$

$= -5 - 6 + 9$

$= -11 + 9$

subtract, keep "-"

$= \boxed{-2}$

**b)**  $(+1) - (-7) - (-7) =$

$= 1 +$

$=$

$-- = +$

$= \boxed{\phantom{00}}$

**c)**  $(+9) + (-6) - (-2) =$

$=$

$=$

$= \boxed{\phantom{00}}$

**d)**  $(-8) - (-5) + (+4) =$

$=$

$=$

$= \boxed{\phantom{00}}$

**e)**  $(-2) + (-6) - (-9) =$

$=$

$=$

$= \boxed{\phantom{00}}$

**f)**  $(+5) - (+7) - (-8) =$

$=$

$=$

$= \boxed{\phantom{00}}$

**g)**  $(+3) - (-6) + (-8) =$

$=$

$=$

$= \boxed{\phantom{00}}$

**h)**  $(+5) + (-4) - (+3) =$

$=$

$=$

$= \boxed{\phantom{00}}$

**i)**  $(-2) - (-6) - (+7) =$

$=$

$=$

$= \boxed{\phantom{00}}$

**j)**  $(+7) + (+15) + (-19) =$

$=$

$=$

$= \boxed{\phantom{00}}$

**k)**  $(-12) - (-13) + (+15) =$

$=$

$=$

$= \boxed{\phantom{00}}$

**l)**  $(-14) - (+16) + (+18) =$

$=$

$=$

$= \boxed{\phantom{00}}$

**m)**  $8 - 2 - -7 =$

$=$

$=$

$= \boxed{\phantom{00}}$

**n)**  $5 + -7 + -9 =$

$=$

$=$

$= \boxed{\phantom{00}}$

**o)**  $-6 + 5 + -8 =$

$=$

$=$

$= \boxed{\phantom{00}}$

**p)**  $-9 - 2 + -4 =$

$=$

$=$

$= \boxed{\phantom{00}}$

**q)**  $10 + -5 + -6 =$

$=$

$=$

$= \boxed{\phantom{00}}$

**r)**  $-5 + -10 + 12 =$

$=$

$=$

$= \boxed{\phantom{00}}$

## Skill 8.4 Adding and subtracting integers using order of operations.

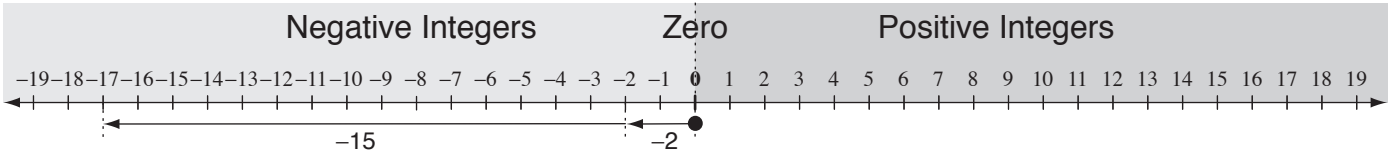
MM9 11 22 33 44  
MM10 11 22 33 44

- Complete the operations in the correct order.
  - Simplify within brackets.
  - Add and/or subtract from left to right.
- Use these sign rules:

If same:  $++ = +$   
 $-- = +$

If different:  $+- = -$   
 $-+ = -$

- The sign of the result can also be visualised using a number line.



**Q.**  $(5 - 7) - (6 + 9) =$

**A.**  $(5 - 7) - (6 + 9)$  — complete the brackets first  
 $= (-2) - (+15)$   
 $= -2 - 15$  —  $-+ = -$   
 $= -17$  — start at  $-2$ , move backward 15 more

**a)**  $4 + (-6 + 3) =$  — brackets first  
 $= 4 + (-3)$  —  $+- = -$   
 $= 4 - 3 = \boxed{1}$

**b)**  $2 + (4 - 9) =$   
 $= 2 + (-5)$   
 $= \dots = \boxed{\dots}$

**c)**  $7 + (3 - 8) =$   
 $= \dots = \boxed{\dots}$

**d)**  $4 - (9 - 7) =$   
 $= \dots = \boxed{\dots}$

**e)**  $5 - (-8 + 6) =$   
 $= \dots = \boxed{\dots}$

**f)**  $6 + (-5 - 4) =$   
 $= \dots = \boxed{\dots}$

**g)**  $7 - (3 - 4) =$   
 $= \dots = \boxed{\dots}$

**h)**  $10 + (-2 - 5) =$   
 $= \dots = \boxed{\dots}$

**i)**  $8 - (-3 + 9) =$   
 $= \dots = \boxed{\dots}$

**j)**  $(2 - 5) - (3 + 4) =$  — brackets first  
 $= (-3) - (+7)$  —  $-+ = -$   
 $= -3 - 7$  — add, keep "-"  
 $= \dots = \boxed{\dots}$

**k)**  $(8 - 4) + (3 - 9) =$   
 $= \dots = \boxed{\dots}$

**l)**  $(5 - 9) - (9 - 5) =$   
 $= \dots = \boxed{\dots}$

**m)**  $(5 + 6) - (4 - 11) =$   
 $= \dots = \boxed{\dots}$

**n)**  $(3 - 8) + (9 - 14) =$   
 $= \dots = \boxed{\dots}$

**o)**  $(-8 - 6) - (7 - 13) =$   
 $= \dots = \boxed{\dots}$

### Skill 8.5 Finding missing integers using addition and subtraction.

MM9 11 22 33 44  
MM10 11 22 33 44

- Circle the positive integer (no sign) or negative integer ('-' sign) that is on the side of the unknown.  
*Hint: Don't confuse the sign with the operation. (see skill 8.1, page 85)*
- Use the inverse operations of addition or subtraction to remove the circled integer from the side of the unknown.  
*Hint: e.g. +6 added to -6 will cancel each other and leave zero as the result.*
- Perform the same operation on the other side of the equation.
- If the unknown has a negative sign attached, multiply both sides of the equation by another negative sign.  
*Hint: '- - = +' i.e. The sign of the unknown will become its inverse, a '+'.*

**Q.**  $-6 - \boxed{\phantom{00}} = 8$

**A.**  $\textcircled{-6} - x = 8$  *Use inverse of -6*  
 ~~$-6 - x + 6 = 8 + 6$~~  *+6 to both sides*  
 $-x = 8 + 6$   
 ~~$-x = 8 + 6$~~  *cancel*  
 $-x = 8 + 6$   
 $-x = 14$  *Use inverse of '-'*  
 $- -x = -14$  *- - = +*  
 $x = -14$

**a)**  $\boxed{-8} + \textcircled{-4} = -12$

~~$x + -4 + 4 = -12 + 4$~~

$x = -8$

**b)**  $\boxed{\phantom{00}} - \textcircled{3} = -5$

~~$x - 3 + 3 = -5 + 3$~~

**c)**  $4 + \boxed{\phantom{00}} = -3$

~~$4 + x$~~

**d)**  $\boxed{\phantom{00}} - -6 = -9$

**e)**  $-5 + \boxed{\phantom{00}} = 13$

**f)**  $-8 + \boxed{\phantom{00}} = -3$

**g)**  $\boxed{\phantom{00}} + -4 = -8$

**h)**  $\boxed{\phantom{00}} - -6 = 1$

**i)**  $\boxed{\phantom{00}} + 7 = -4$

**j)**  $9 - \boxed{11} = -2$

~~$9 - x - 9 = -2 - 9$~~

$-x = -11 \Rightarrow - -x = - -11$  *- - = +*

**k)**  $-6 - \boxed{\phantom{00}} = 7$

**l)**  $-9 - \boxed{\phantom{00}} = -3$

**m)**  $-\boxed{\phantom{00}} + 4 = -6$

**n)**  $8 - \boxed{\phantom{00}} = 5$

**o)**  $-\boxed{\phantom{00}} - 7 = 3$