

# Multiplication of Integers

- 3 Ways:
1. Bank Model - Tiles
  2. Number Line
  3. Rules

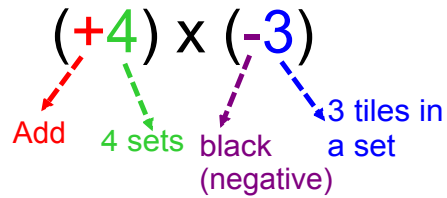
## 1. Bank Model - Tiles

Black - Negative

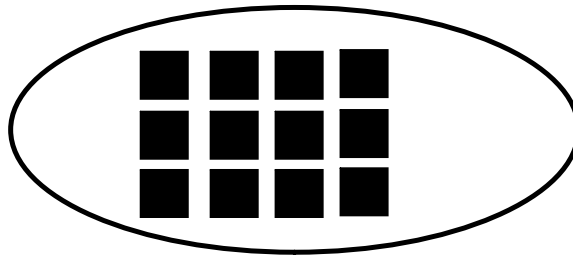
White - Positive



Example 1

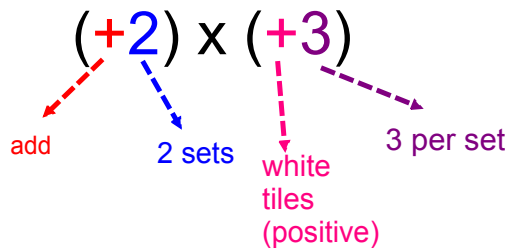


Bank

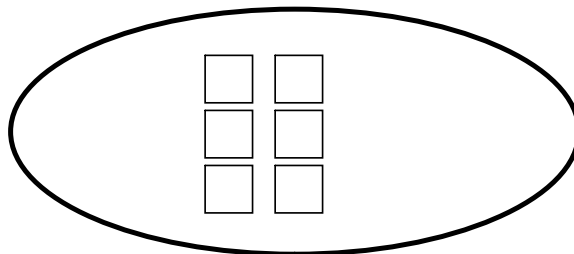


How many tiles are in the bank? 12  
Are they positive or negative? Negative  
 $\therefore$  answer = -12

Example 2

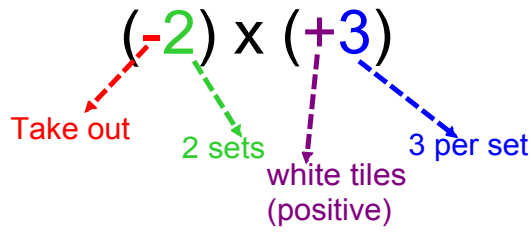


Bank



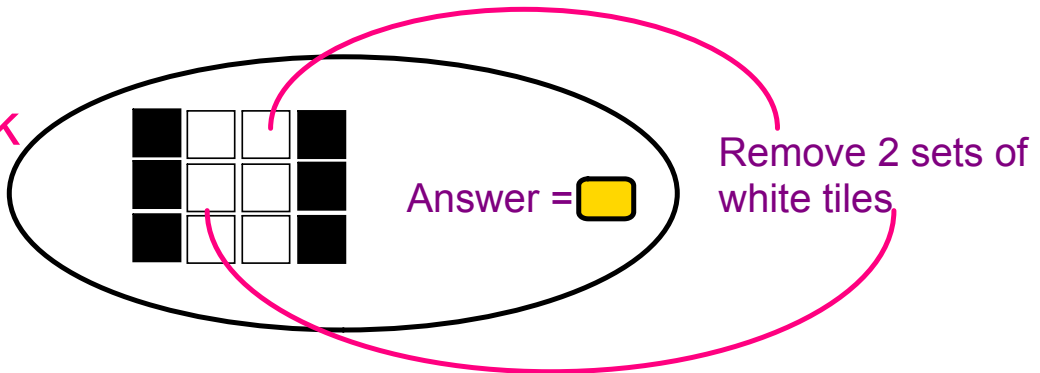
How many tiles are in the bank? 6  
Are they positive or negative? Positive  
 $\therefore$  answer = +6

Example 3

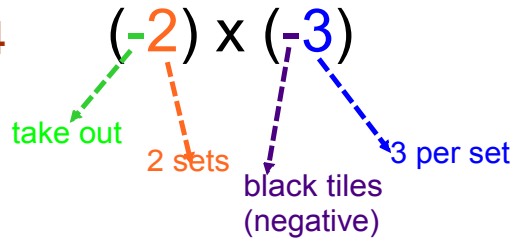


\*\*Have to add zero pairs when you start with a negative

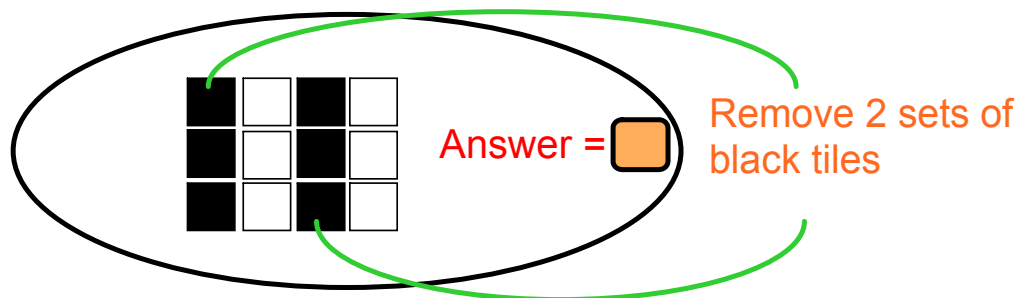
Bank



Example 4



Bank



Try these...

1.  $(-2) \times (+5)$

2.  $(-1) \times (-3)$

3.  $(+4) \times (+2)$

4.  $(+3) \times (-6)$

## Method 2 - Number Line

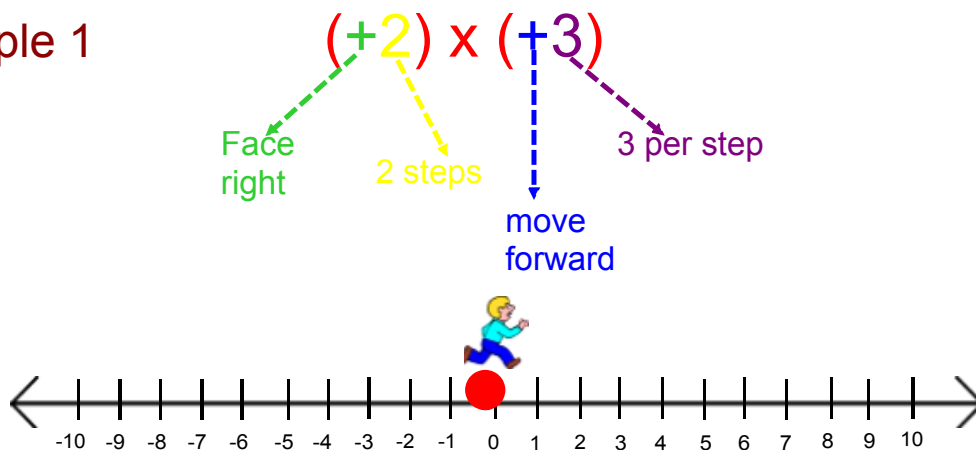
### First Number...

sign: direction facing (+ forward, - backward)  
#: number of steps

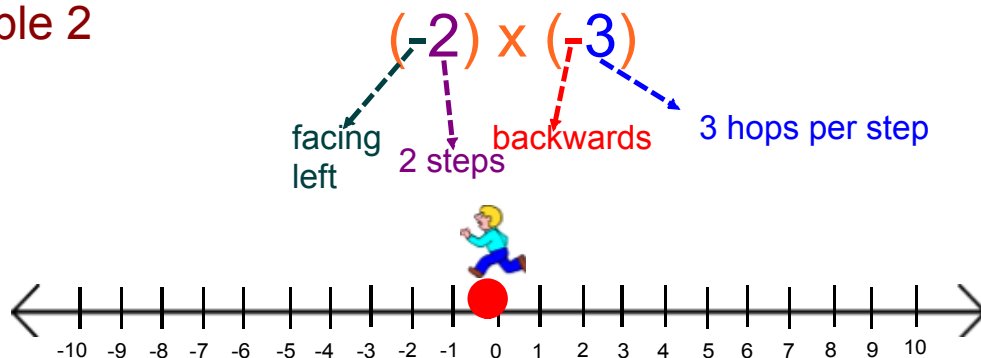
### Second Number...

sign: direction moving (+ → forward, - → backward)  
#: size of hops/moves

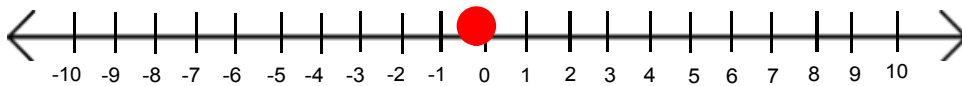
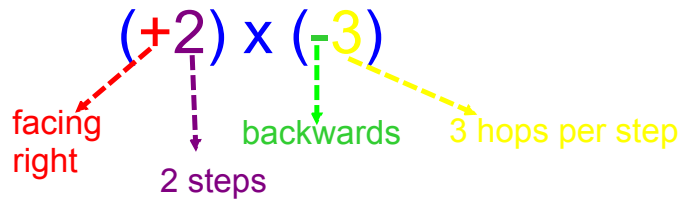
### Example 1



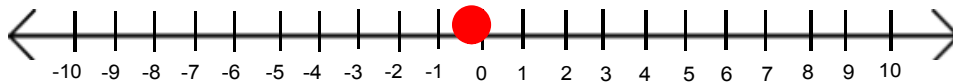
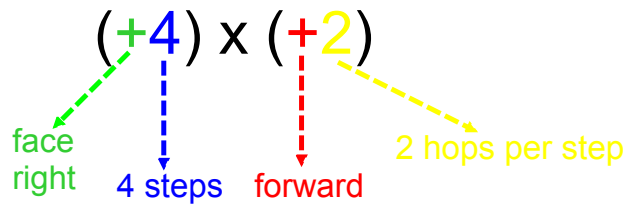
### Example 2



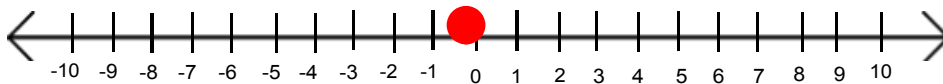
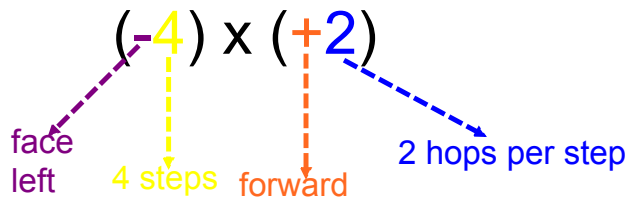
### Example 3



### Example 4



### Example 5



## Method 3 - Multiplying Integer Rules

- when multiplying 2 integers with the same sign - positive answer
- when multiplying 2 integers with different signs - negative answer

ie:  $(+) \times (+) = (+)$   
 $(-) \times (-) = (+)$  ) Same sign - positive answer

$$\begin{aligned} (+3) \times (+4) &= (+12) \\ (-5) \times (-7) &= (+35) \end{aligned}$$

$(+) \times (-) = (-)$   
 $(-) \times (+) = (-)$  ) Different sign - negative answer

$$\begin{aligned} (+3) \times (-4) &= (-12) \\ (-5) \times (+7) &= (-35) \end{aligned}$$

Text book...pp. 68-69...#'s 5 - 13, 16 - 18

Work book...pp. 29, 30, 31

