8.1 Adding and Subtracting Integers
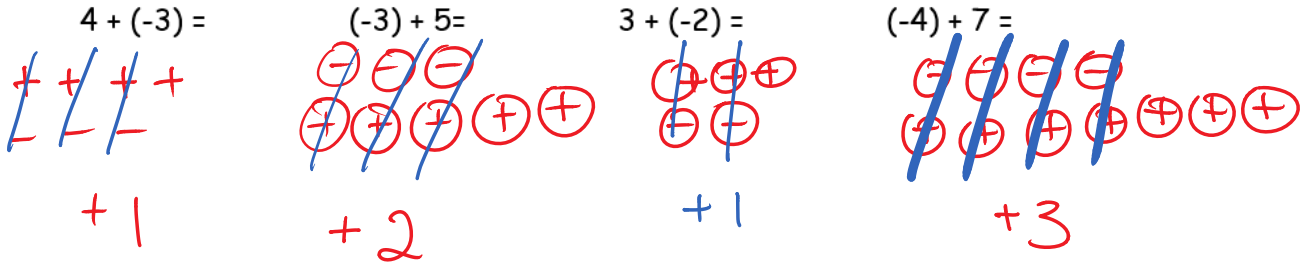
Adding can be represented using colour chips.
Draw diagrams to represent each addition/subtraction.

4 + (-3) =

$+1$

(-3) + 5=

$+2$

3 + (-2) =

$+1$

(-4) + 7 =

$+3$

Evaluate the following:

9 + (-4) = $+5$

(-3) + 7 = $+4$

(-3) + (-4) = -7

5 + (-3) = $+2$

12 + 5 = $+17$

-4 + (-4) = -8

What do you notice when you add a positive number?

Eg: 4 + (+2) = Number increases.

$\longrightarrow$ move right on the number line

What happens when you add a negative number?

Eg: 4 + (-2) Number decreases.

$\longleftarrow$ move left on the number line.

Does adding a negative always make the answer negataive?

No. Depends on how big the first number is.
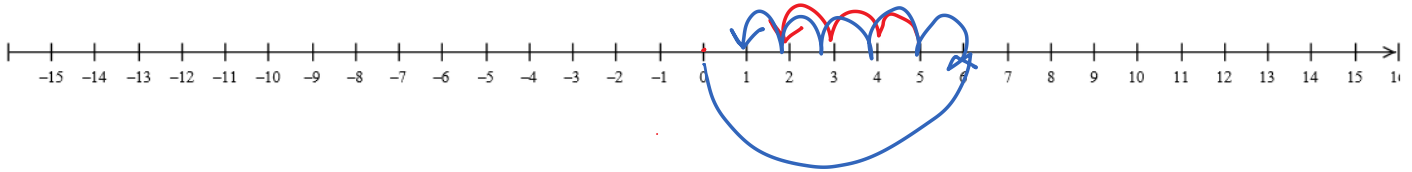
ex) $(+8) + (-2) = +6$

Use integer chips and a number line to represent each subtraction:

(+5) – (+3) = **+ 2**

(+6) – (+5) = **+ 1**

What happens when you subtract a positive number?

The number will decrease.
Move left on the number line.

How might you be able to subtract the following:
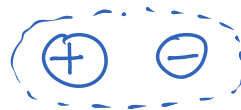You may need to think of "zero pairs"

(+3) – (+5) = **– 2**

(–4) – (+2) = **–6**

What is a zero pair?

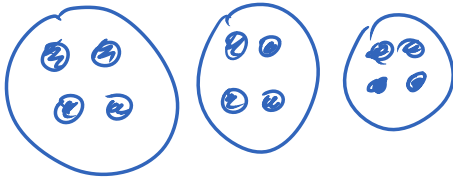**A pair of integer chips**
with one chip representing
+1 and one –1

A zero pair represents
zero because
$$(+1) + (-1) = 0$$

Draw a diagram and an addition statement that represents 3 x 4

3 x 4 means _____3_____ groups of _____4_____

Diagram:

Addition:

$$4 + 4 + 4$$

Draw a diagram and write an addition statement to represent each multiplication.

a) (+3) x (+2) =

3 groups of +2

$$+6$$

b) (+5) x (+3) =

5 groups of +3

$$+15$$

c) (+4) x (-3) =

4 groups of -3

$$-12$$

d) (+2) x (-6) =

2 groups of -6

$$-12$$

What do you notice when a (+) is multiplied by a (-)?
The result is a negative number.

Eg Jake had a big wad of cash, but he paid Rogan $5 for each hour that Rogan worked in his yard. If Rogan worked 4 hours, what was the overall change in Jake's wad of cash?

$$-\$5/hr \times 4 \text{ hours} = -\$20$$

Jake has $20 less in his wad of cash.