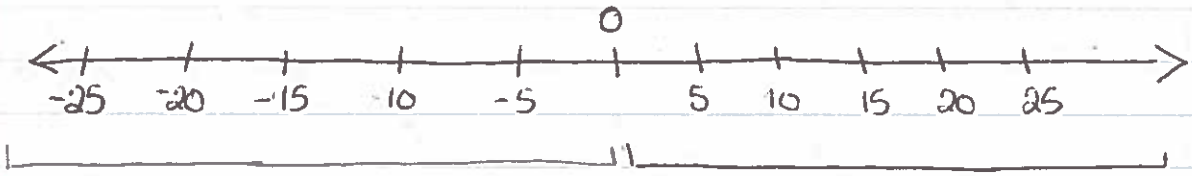
Signed Numbers Cheat Sheet



Negative Numbers

numbers are bigger when they are closer to zero

$-5 > -8$

Positive Numbers

numbers are bigger when they are farther from zero

$5 < 8$

Absolute Value

Absolute Value is the distance of a number from 0.

$|-5| = 5$

-5 is 5 spaces from 0.

$|5| = 5$

5 is 5 spaces from 0.

Multiplying / Dividing Signed Numbers

When you have 2 numbers with the same sign, your answer will be positive.

$(-) \times (-) = (+)$ $\qquad$ $(-) \div (-) = (+)$

$(+) \times (+) = (+)$ $\qquad$ $(+) \div (+) = (+)$

$-2 \times -3 = 6$ $\qquad$ $-6 \div -2 = 3$

$2 \times 3 = 6$ $\qquad$ $6 \div 2 = 3$

When you have one positive and one negative number, your answer will be negative.

$(-) \times (+) = (-)$ $\qquad$ $(-) \div (+) = (-)$

$(+) \times (-) = (-)$ $\qquad$ $(+) \div (-) = (-)$

$-2 \times 3 = -6$ $\qquad$ $-6 \div 2 = -3$

$2 \times -3 = -6$ $\qquad$ $6 \div -2 = -3$

{ same signs = positive
different signs = negative }

Adding/Subtracting Signed Numbers

1. Adding 2 Negatives:
   * add the two numbers
   * add a negative sign

$-4 + (-12) = -16$ — add the 2 numbers: $4 + 12 = -16$ — add a negative sign.

$-5 + (-25) = -30$

2. Adding a negative and a positive:
   * subtract the two numbers
   * add the sign of the number with the biggest absolute value.

$8 + (-3) = 5$ — subtract: $8 - 3 = 5$ — add sign of bigger number

$7 + (-8) = -1$

↳ $8 - 7 = -1$ — add sign of bigger number.

3. Subtracting Signed Numbers.
   * change subtraction to addition
   * change the sign of the second number to the opposite
   * proceed as addition problem

$-9 - 15$

$-9 + (-15) = -24$ — change to addition; change sign to opposite.

$-5 - (-7)$

$-5 + (+7) = 2$

$10 - (-6)$

$10 + (+6) = 16$