Worksheet: Using Math to Find Resultants   Name_____*KEY*_____
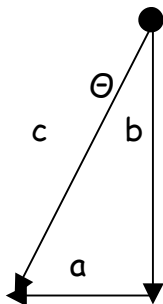
1. Find the resultant of 55.4 units, W and 69.2 units S.

$a = 55.4 \quad b = 69.2 \quad c = ?$

$c = \sqrt{55.4^2 + 69.2^2} = 88.8$

$\tan \Theta = \dfrac{55.4}{69.2} = 38.7°$

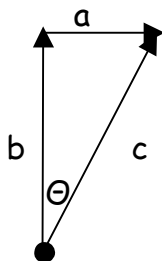$\boxed{Resultant = 88.6 \text{ units}, 38.7° \text{ W of S}}$

2. What is the resultant of 1,230 m/s, S and 1,450 m/s, N?

$1,450 - 1,230 = 220$

$\boxed{Resultant = 220 \text{ m/s, N}}$

3. If you walk 6.00 m, N and 5.00 m E, what is your final location from your start (in other words, what is your resultant)?
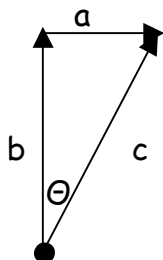
$a = 5 \quad b = 6 \quad c = ?$

$c = \sqrt{5^2 + 6^2} = 7.81$

$\tan \Theta = \dfrac{5}{6} = 39.8°$

$\boxed{Resultant = 7.81 \text{ m}, 39.8° \text{ E of N}}$

4. Combine 27 mi/h, E and 73 mi/h, N.

$a = 27 \quad b = 73 \quad c = ?$

$c = \sqrt{27^2 + 73^2} = 77.8$

$\tan \Theta = \dfrac{27}{73} = 20.3°$

$\boxed{Resultant = 77.8 \text{ mi/h}, 20.3° \text{ E of N}}$