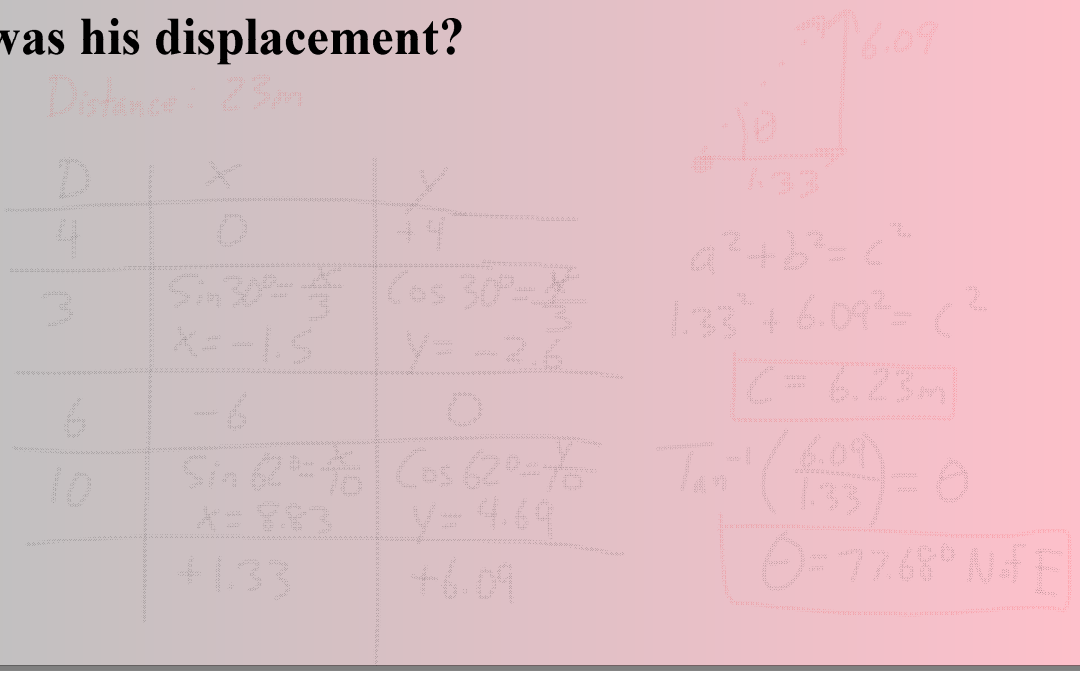
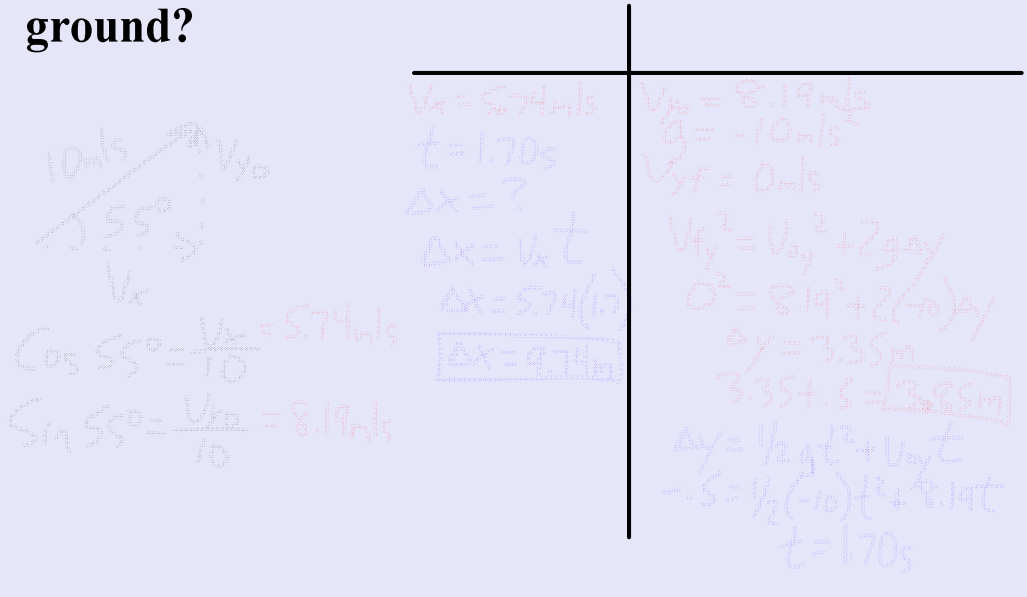
A man walks 4 m north, 3 m at an angle of 30^0 W of S, then 6 m west, and finally 10 m at an angle of 62^0 E of N. What distance did he walk? What was his displacement?



A ball is thrown up at an angle of 55^0 above the horizontal at 10 m/s. If the ball is thrown from a desk that is 0.5 m off the ground, how high does it get and how far does it go before it hits the ground?



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Distance: 23m

D	x	y
4	0	+4
3	$\sin 30^\circ = \frac{x}{3}$ $x = -1.5$	$\cos 30^\circ = \frac{y}{3}$ $y = -2.6$
6	-6	0
10	$\sin 62^\circ = \frac{x}{10}$ $x = 8.83$	$\cos 62^\circ = \frac{y}{10}$ $y = 4.69$
	+1.33	+6.09

$a^2 + b^2 = c^2$

$1.33^2 + 6.09^2 = c^2$

$c = 6.23m$

$\tan^{-1}\left(\frac{6.09}{1.33}\right) = \theta$

$\theta = 77.68^\circ$ N of E

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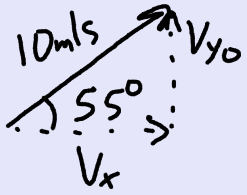

$\cos 55^\circ = \frac{V_x}{10} = 5.74 m/s$

$\sin 55^\circ = \frac{V_{yo}}{10} = 8.19 m/s$

$V_x = 5.74 m/s$

$t = 1.70s$

$\Delta x = ?$

$\Delta x = V_x t$

$\Delta x = 5.74(1.7)$

$\Delta x = 9.74m$

$V_{yo} = 8.19 m/s$

$g = -10 m/s^2$

$V_{yf} = 0 m/s$

$V_{fy}^2 = V_{oy}^2 + 2g\Delta y$

$0^2 = 8.19^2 + 2(-10)\Delta y$

$\Delta y = 3.35m$

$3.35 + .5 = 3.85m$

$\Delta y = \frac{1}{2} g t^2 + V_{oy} t$

$-.5 = \frac{1}{2}(-10)t^2 + 8.19t$

$t = 1.70s$