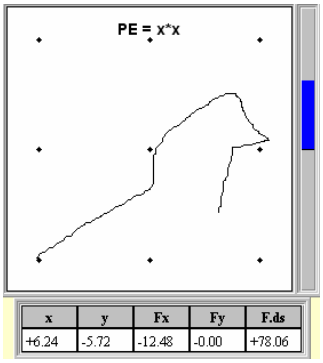
Worksheet for Exploration 7.7: Exploring Potential Energy Functions



Select a possible potential energy function. Drag the crosshair cursor with the mouse. The bar graph on the right displays the work done along the path by the force that corresponds to the given potential energy function. For your reference, there are circles every 10 m that form a coordinate grid **(position is given in meters and the result of the integral given on the bar graph is in joules)**. Restart.

a. Describe each potential energy function in words.

PE(x,y) = 9.8*y

PE(x,y) = x*x

PE(x,y) = x*y

PE(x,y) = x*x+y*y

b. How does the work relate to the change in potential energy along a certain path?

c. What happens when you drag the cursor through a closed path (a path that begins and ends at the same point)?

d. What is the force that is responsible for each potential energy function? Write the force in the x and y direction as a function of x and y, $F_x(x, y)$ and $F_y(x, y)$.

$F_x=$	$F_y=$
$F_x=$	$F_y=$
$F_x=$	$F_y=$
$F_x=$	$F_y=$

When you are finished with this Exploration, feel free to enter your own potential energy function.