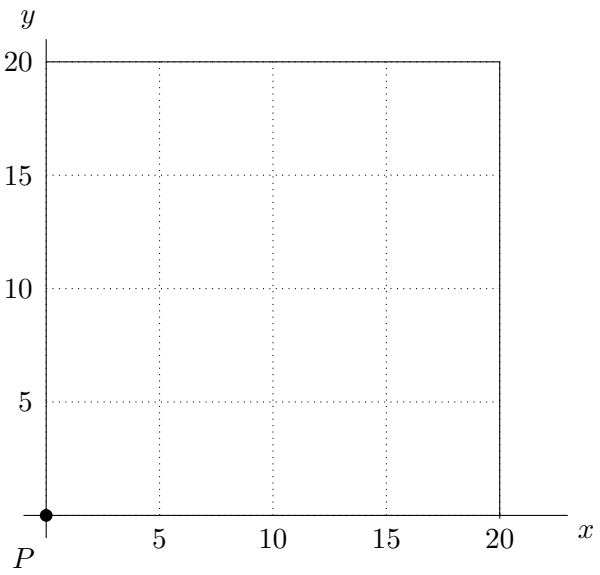
8. [13 points] During the first round of the rematch between Paul "Stretch" Cassenick and Stephen "Dee" Boxer, Paul's position in the boxing ring t minutes after the 3-minute round began is given by $(x(t), y(t))$ where $x(t)$ and $y(t)$ are Paul's distance from his corner, in feet, in the $x-$ and $y-$directions, respectively. The ring is the 20x20 foot square pictured below, and the point P is Paul's corner. Suppose $x(t) = -8t(t-3)$, and $y(t)$ has values given in the table below and is **linear** between each consecutive pair of t-values in the table.



t	$y(t)$
0	0
1	20
1.5	10
3	0

a. [5 points] On the diagram of the ring, sketch a graph of Paul's path through the ring during the first round of the rematch. Label the points corresponding to Paul's position at $t = 1$ and $t = 1.5$ with their x- and y-coordinates.

b. [4 points] Find the slope of the tangent line to Paul's path at $t = 2$.

c. [4 points] Write an explicit expression involving integrals that gives the distance Paul traveled during the first minute of the round. Your answer should not contain the letters 'x' or 'y'.