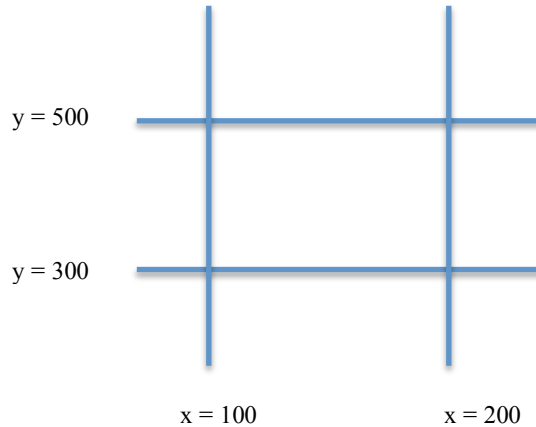


Homework 5 (Due beginning of class, Monday, Sept 26th)

50 points

1. (25 pts) Consider the window with the boundaries shown. Use Cohen & Sutherland's algorithm to clip the lines listed below. Show full details of the algorithm for credit. (i.e. show bit codes for end points, show results of the "or" and "and" operations, and determine the new coordinates after intersections.) Use bit codes as in our book, i.e., (left, above, right, below). Clip the lines below:

- (50,100) to (150, 200)
- (150, 325) to (175, 450)
- (50, 150) to (150, 450)



(clip from left: $A.y = P1.y + k*(W.left - P1.x)$
 from right: $A.y = P1.y + k*(W.right - P1.x)$
 from above: $A.x = P1.x + \frac{1}{k}*(W.top - P1.y)$
 from below: $A.x = P1.x + \frac{1}{k}*(W.bottom - P1.y)$)

2. (6 pts) Given a vector $a = (5, -4)$:
 the magnitude of a is _____; the normalized vector of a is _____;
 the vector perpendicular to a is _____.
3. (6 pts) Given vector $a = (3, 6)$ and $b = (4, 1)$: $a \cdot b =$ _____;
 the angle θ between the two vectors is _____; $a \times b =$ _____.
4. (3 pts) Show the parametric form of the line that passes through points $A(3, 6)$ and $B(2, 10)$: _____.
5. (10 pts) How far from the line through $(2, 5)$ and $(4, -1)$ does the point $(6, 11)$ lie? (textbook pg 148 practice exercise 4.3.11). Show all the calculation steps involved.

Peercode review # 1 (finish by Monday, Sept 26th: 12:40pm)

Project 1 programs are ready for peer reviewing. Since this is the first review, please read the review instruction at <http://www.cs.mtsu.edu/~cen/1170/PeerSpaceLabD/LabD.html>. Make sure to: (1) review all assigned programs; (2) read the reviews other students give you, and (3) rate your reviewer(s).