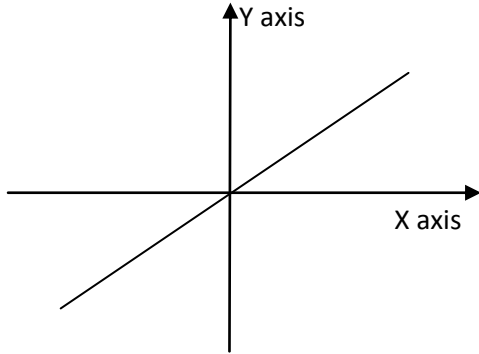
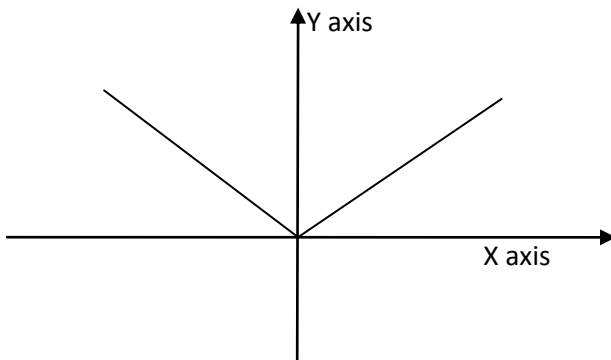


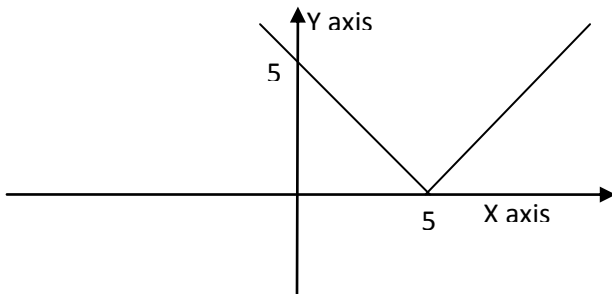
Graph of $y = x$ is a line passing through the center and with slope 1



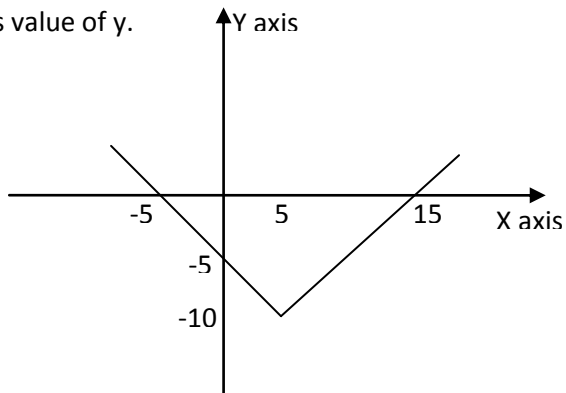
Graph of $y = |X|$ is as shown below. Mod cannot be negative so all negative values of y are flipped to positive.



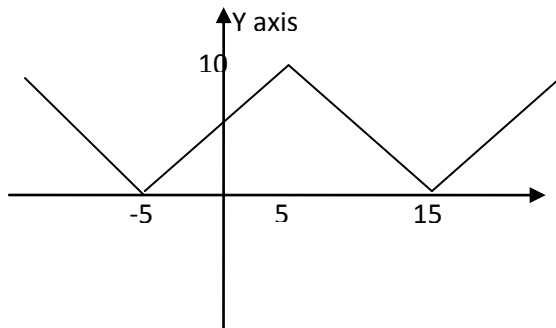
Graph of $y = |X - 5|$ shifts on the x axis. Now $y = 0$ for $x = 5$, not 0



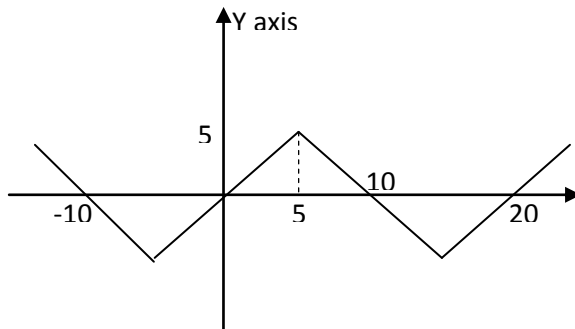
The graph of $y = |X - 5| - 10$ is just the above graph shifted down by 10 units because now y is 10 less than every previous value of y .



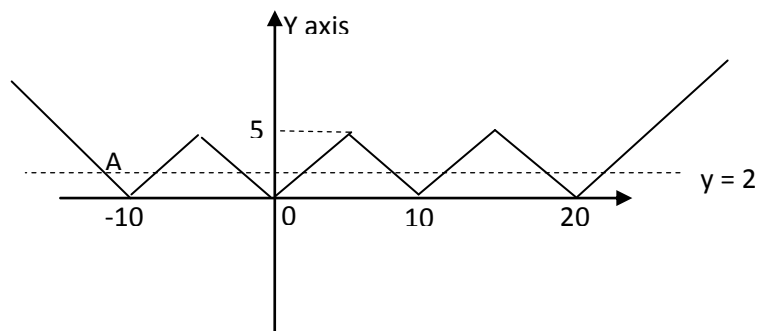
Now we need to take the mod of this entire graph to get $y = ||X - 5| - 10|$. Since a mod never has a negative value, whatever part of the graph of the expression is below the x axis, in III or IV quadrant, it is reflected above the x axis in I or II quadrant.



Next we need the *Graph of* $y = ||X - 5| - 10| - 5$. Again, this is the previous graph shifted down on the y axis by 5 units.



Next we need to find *Graph of* $y = |||X - 5| - 10| - 5|$. The entire thing has a mod around it so we do what we have been doing. Flip all negative y values to I and II quadrant.



This is the required graph. Here, we need to see, for how many values of x is $y = 2$? We see that $y = 2$ at 8 points (At every point where this graph intersects with $y = 2$ line e.g. point A).