Analytical Geometry and Linear Algebra I, Class #6

Innopolis University, October 2022

1 Lines in plane

1. Find the slope of the line joining the points $(2, 3)$ and $(4, -5)$.
2. Find the slope of the line $2x - 3y + 7 = 0$.
3. Find the equation of the straight line, the portion of which between the axes is bisected at the point $(2, -5)$.
4. Find the equation of the straight line passing through the intersection of the lines $3x - y = 5$ and $2x + 3y = 7$ and making an angle of $45°$ with the positive direction of x-axis.
5. Find the equation of the straight line concurrent[1] with the lines $2x + 3y = 3$ and $x + 2y = 2$ and also concurrent with the lines $3x - y = 1$ and $x + 5y = 11$.
6. $A(4, 1)$, $B(7, 4)$, and $C(5, -2)$ are the vertices of a triangle. Find the line equation which is goes from A and perpendicular to BC.
7. Find the equation of the straight line making an angle $135°$ with the positive direction of x-axis and cutting of an intercept 5 on the y-axis.

[1] Lines are said to be cuncurrent if they are intersect at a single point