1. Find the equation of a the line that is perpendicular to the line $3x+5y=9$ and passes through (2,3).

2. Find the interval within $[0, 2\pi]$ such that the trigonometric inequality

$$\sin(\theta) < \frac{1}{2} \tag{1}$$

holds.
hint: Draw both functions $y = \sin(\theta)$ and the horizontal line $y = \frac{1}{2}$ in one chart. Then, find the interval(intervals) at which the graph of $\sin(\theta)$ is below that the line $y = \frac{1}{2}$.

3. Find the domain of the function

$$f(x) = \sqrt{x^2 - 5x + 6} \tag{2}$$