Conditions

Solve (using any method), write your answer in interval notation and graph the solution set.

1a. x^2-6> -5x

1b. 6x^2-5x+1 less than or equal to 0

Solution

1a.

$$x^2 - 6 > -5x$$

$$x^2 + 5x - 6 > 0$$

$$x^2 + 5x - 6 = 0$$
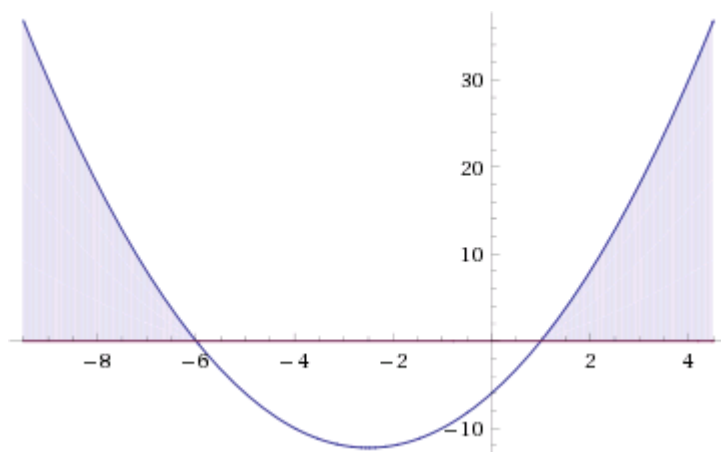
$$D = 25 + 24 = 49$$

$$x = \frac{-5 \pm 7}{2}$$

$$x_1 = -6$$

$$x_2 = 1$$

$$(x - 1)(x + 6) > 0$$

$$x \epsilon (-\infty, -6) \cup (1, +\infty)$$

1b.

$$6x^2 - 5x + 1 \leq 0$$

$$6x^2 - 5x + 1 = 0$$

$$D = 25 - 24 = 1$$

$$x = \frac{5 \pm 1}{12}$$

$$x_1 = \frac{1}{2}$$

$$x_2 = \frac{1}{3}$$

$$\left(x - \frac{1}{2}\right)\left(x - \frac{1}{3}\right) \leq 0$$

$$x \in \left[\frac{1}{3}, \frac{1}{2}\right]$$