Question #20508

Identify the vertex of the parabola: $f(x)=(x-9)^2-9$.

Solution

$$f(x)=(x-9)^2-9=x^2-18x+81-9=x^2-18x+72;$$

$$x_0=-\frac{b}{2a}=\frac{18}{2}=9;$$

$$y_0=-\frac{D}{4a}=-\frac{324-4\cdot 72}{4}=-\frac{324-288}{4}=-\frac{36}{4}=-9.$$

Answer: The vertex of parabola is (9;-9).