Newtons

F(x)= $x^2 + 3$ starting point 5

Solution:

نوجد المشتقة الاقتران $\acute{f}(x)$
$$f\acute{}(x) = 2x$$
نعوض في قانون نيوتن
$$x_{n+1} = x_n - \frac{f(x_n)}{\acute{f}(x_n)}$$
هي نقطة البداية في الاغلب بتكون (صفر) **n**
$$x_{0+1} = x_0 - \frac{f(5)}{\acute{f}(5)}$$
$$x_0 = 5$$
$$x_1 = 5 - \frac{f(5)}{\acute{f}(5)}$$
$$x_1 = 5 - \frac{x^2 + 3}{2x}$$
$$x_1 = 5 - \frac{5^2 + 3}{2*5}$$
$$x_1 = 5 - \frac{28}{10}$$
$$x_1 = 5 - 2.8$$
$$\boxed{x_1 = 2.2}$$

....

$$x_{n+1} = x_n - \frac{f(x_n)}{\acute{f}(x_n)}$$
$$x_2 = x_1 - \frac{f(x_1)}{\acute{f}(x_1)}$$
$$x_2 = 2.2 - \frac{f(2.2)}{\acute{f}(2.2)}$$
$$x_2 = 2.2 - \frac{x^2 + 3}{2x}$$
$$x_2 = 2.2 - \frac{2.2^2 + 3}{2*2.2}$$
$$x_2 = 2.2 - \frac{7.84}{4.4}$$
$$x_2 = 2.2 - 1.782$$
$$\boxed{x_2 = 0.418}$$