Answer on Question #55093 - Math - Commutative Algebra

Hello! I understand everything except how you got from $-0.03x^3+3x^2+21x-250$ to $-0.09x^2+6x+21$?

Solution

The second function is the derivative of the first one:

$$\frac{d}{dx}(-0.03x^3+3x^2+21x-250)=-0.03\cdot\frac{d}{dx}(x^3)+3\cdot\frac{d}{dx}(x^2)+21\cdot\frac{d}{dx}(x)-\frac{d}{dx}(250)$$

Since

$$\frac{d}{dx}(x^3)=3x^2$$

$$\frac{d}{dx}(x^2)=2x$$

$$\frac{d}{dx}(x)=1$$

$$\frac{d}{dx}(250)=0$$

we obtain

$$\frac{d}{dx}(-0.03x^3+3x^2+21x-250)=-0.03\cdot 3x^2+3\cdot 2x+21\cdot 1-0=$$

$$=-0.09x^2+6x+21$$