

Long DivisionExample 1: Divide $x^2 + 2x - 30$ by $x - 5$

$$\frac{x^2+2x-30}{x-5}$$

$$x - 5 \overline{) x^2 + 2x - 30}$$

$(x - 5)$ is not a factor of $x^2 + 2x - 30$ because the remainder $\neq 0$

Example 2: Divide $3x^2 - 7x + 2$ by $x + 2$

Is $(x + 2)$ a factor of the given polynomial? Why or Why not?

Example 3: Divide $(9x^3 - 48x^2 + 13x + 3) \div (3x - 5)$

Is $(3x - 5)$ a factor of the given polynomial? Why or Why not?

Example 4: Divide $(6x^3 + 2x^2 - 11x + 12) \div (3x + 4)$

Is $(3x + 4)$ a factor of the given polynomial? Why or Why not?