1.01 Homework #1 - 10 all

*Multiply each polynomial.*

1) \(3x - 4\) and \(x + 5\)
2) \(4x^2 - 1\) and \(2x^2 + 3x + 1\)
3) \(2x + 3\) and \(3x^3 - 2x^2 + x\)
4) \(2x^2 - 5x + 3\) and \(3x^2 + x - 7\)
5) \(5x^3 - 4x\) and \(3x^2 - 2x + 5\)

6) For \(3x^4 + 5\), identify the coefficient, the variable, and the degree. And then name the polynomial.
7) Use \( p(x) = 2x^2 + 3 \). Find a polynomial \( r(x) \) such that
\[
p(x) + r(x) = 2x^2 - 6x + 14
\]

8) Use \( p(x) = 5x^2 + 3x + 1 \). Find a polynomial \( r(x) \) such that
\[
p(x) + r(x) = 3x^3 + 5x^2 - 4x - 5
\]

9) Calculate the sum AND difference.
\[
5x^3 - 4x^2 + x - 1 \quad \text{and} \quad 2x^2 + 3x^4 - 5
\]

10) Determine if \( 2x + 5x^3 \) is a polynomial or not. If yes, identify the coefficient, the variable, and the degree. And then name the polynomial.