The Degree of a Polynomial
Preliminaries and Objectives

Preliminaries
- Exponents
- Variables

Objectives
- Polynomials
- Degree of a polynomial
Ingredients

Materials
- Real Numbers
- A variable “x”

Operations
- Addition
- Subtraction
- Multiplication
What We Get

\[ 4 \quad x^2 \]
\[ x \quad \frac{1}{2} x^2 \]
\[ 4x \quad \frac{1}{2} x^2 + 4x - 3 \]
\[ 4x - 3 \quad (x - 3)(x - 4) = x^2 - 7x + 12 \]
Terms

**Term**

1. The product of a real number and $x$ raised to a positive integer power, OR
2. A lone real number (called the **constant**)

**Polynomial**

A polynomial is the sum of terms

**Leading Term**

The term of a polynomial with the largest power of $x$
Degree of a Polynomial

The exponent of the leading term

Examples

\[ 6x^5 - 12x^4 + x^2 - 7 \] has degree 5

\[ (x + 3)(x - 4) \] has degree 2 since \[ (x + 3)(x - 4) = x^2 - 2x - 12 \]
Determine whether or not the given expression is a polynomial. If it is, find the degree.

\[ (3x^2 - 2)(4 - x) \]

\[ \frac{4}{3} \]

\[ \frac{x^2 - x - 1}{x + 3} \]

\[ x + 3 \]

\[ x^2 + x^{-2} \]

\[ x^2 + x^4 - 3 \]