**Polynomials and Graphs**

For each of the following polynomials,

1. Use a CAS (Maple or Wolfram-Alpha) and/or a calculator to graph each polynomial and find any x-intercepts
2. Factor each polynomial
3. Set each polynomial equal to zero and use a CAS and/or your calculator to solve (that is, find the roots of each polynomial)
4. x2 + 2x – 15

Graph:

x-intercepts:

Factors:

Roots:

1. x3 – 2x2 – 2x – 3

Graph:

x-intercepts:

Factors:

Roots:

1. x4 + 3x3 – 12 x2 – 13x – 15

Graph:

x-intercepts:

Factors:

Roots:

What seems to be the relationships between the x-intercepts, factors, and roots of polynomials?