

Assignment

Write

Describe the similarity between the chunking method of factoring and factoring by grouping. Discuss what the structure of a polynomial would look like in order for you to consider using each method.

Remember

You can factor out the GCF of a polynomial and then factor what remains. Analyzing the structure of a polynomial can help you decide the most efficient method for factoring. Once you have factored a polynomial, you can use the factors to identify the zeros and then use the zeros to sketch a graph.

Practice

1. Factor each polynomial over the set of real numbers. Use the factors to sketch the polynomial.

a. $f(x) = 25x^2 - 10x - 24$

b. $f(x) = x^3 - 4x^2 - 9x + 36$

c. $f(x) = x^4 - 25x^2 + 144$

d. $f(x) = 27x^3 - 18x^2 + 3x$

e. $f(x) = 16x^3 + 54$

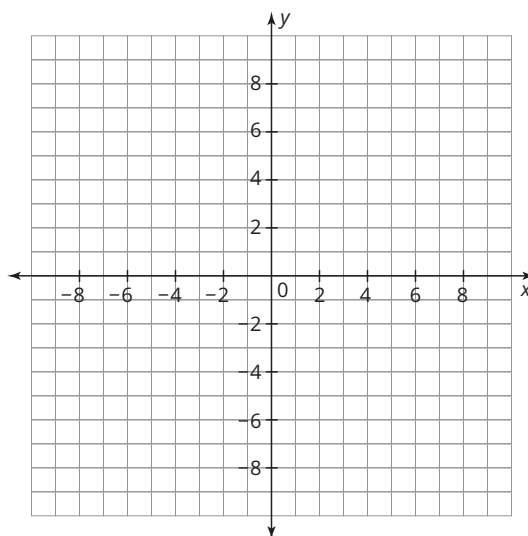
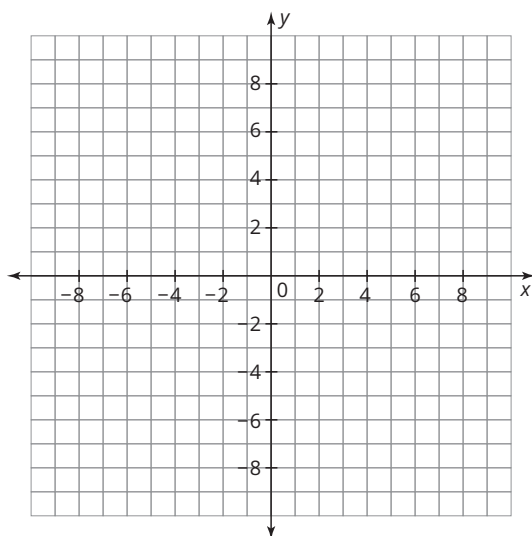
f. $f(x) = 7x^4 - 56x$

Stretch

1. Sketch each piecewise function.

a. $g(x) = \begin{cases} -x + 1, & x < 0 \\ 2x^2 - 8x & x \geq 0 \end{cases}$

b. $f(x) = \begin{cases} x, & x < -1 \\ x^3 + x^2 - x - 1, & -1 \leq x \leq 1 \\ 4 & x > 1 \end{cases}$



Review

1. Consider the two polynomial functions $m(x)$ and $n(x)$.

$$m(x) = -(x^2 + 2)(x^2 - 4)$$

- Which function has the greater y -intercept?
 - Which function has the greater output as x approaches infinity?
2. Use the factors to sketch each cubic function and label the zeros.

a. $f(x) = x(x - 5)(x + 2)$

b. $g(x) = (x + 4)(x - 6)(x + 1)$

3. Determine the roots of each equation. Check your solutions.

a. $y = x^2 + 6x + 4$

b. $y = 2x^2 + 9x - 18$

