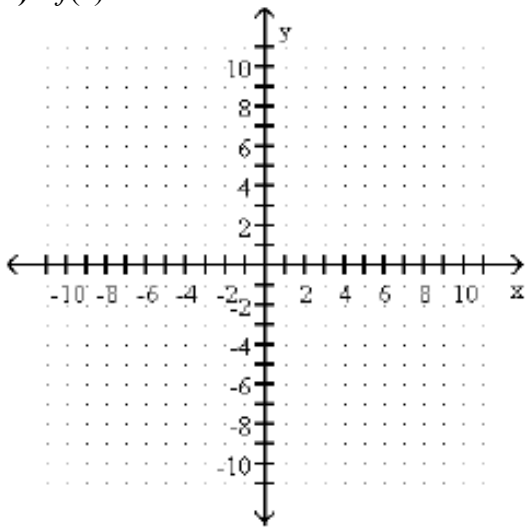
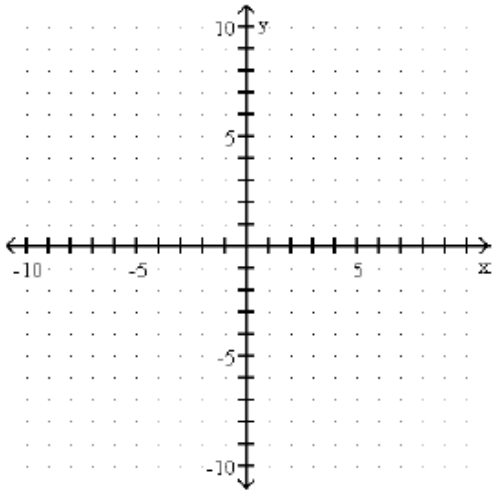
Polynomial Functions
Review for Quiz

For each function below, find the y-intercept, zeros and extrema. Find where it is increasing and decreasing.

1) $f(x) = x^3 + 4x^2 - x - 4$



2) $f(x) = x^3 - 2x^2$



Use long division to find the quotient and the remainder.

3) $(-15x^3 + 17x^2 + 2x + 17) \div (-3x + 1)$

4) $(-12x^3 + 21x^2 - 5x + 9) \div (4x - 3)$

5) $(6x^5 - 5x^4 + x - 4) \div (x + ½)$

6) $(2x^5 - x^4 + 3x^2 - x + 5) \div (x - 1)$

Use the remainder theorem to show that the linear polynomial is a factor of the second polynomial.

7) $x + 5$; $x^3 - 5x^2 - 29x + 105$

8) $x - 6$; $x^3 + 13x^2 + 31x - 45$

Find the requested polynomial.

9) Find a polynomial function of degree 3 with -1, 2, 4 as zeros.

Write an equation with the same zeros that has a y-intercept of -2.

10) Find a polynomial function of degree 3 with -8 , 0 , ½ as zeros.

Find all of the roots of each equation then factor the functions completely. No decimal answers.

11) $f(x) = x^3 + 8x^2 - 2x - 16$

12) $f(x) = x^3 - 75x - 250$

13) $f(x) = x^3 + 7x^2 - 2x - 14$