4-4

Practice

The Rational Root Theorem

List the possible rational roots of each equation. Then determine the rational roots.

1. $x^3 - x^2 - 8x + 12 = 0$

2. $2x^3 - 3x^2 - 2x + 3 = 0$

3. $36x^4 - 13x^2 + 1 = 0$

4. $x^3 + 3x^2 - 6x - 8 = 0$

5. $x^4 - 3x^3 - 11x^2 + 3x + 10 = 0$

6. $x^4 + x^2 - 2 = 0$

7. $3x^3 + x^2 - 8x + 6 = 0$

8. $x^3 + 4x^2 - 2x + 15 = 0$

Find the number of possible positive real zeros and the number of possible negative real zeros. Then determine the rational zeros.

9. $f(x) = x^3 - 2x^2 - 19x + 20$

10. $f(x) = x^4 + x^3 - 7x^2 - x + 6$

11. ***Driving*** An automobile moving at 12 meters per second on level ground begins to decelerate at a rate of -1.6 meters per second squared. The formula for the distance an object has traveled is $d(t) = v_0 t + \frac{1}{2}at^2$, where v_0 is the initial velocity and a is the acceleration. For what value(s) of t does $d(t) = 40$ meters?