3-1 Classwork

Date_____ Period____

State the number of zeros for each function.

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

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

3) $f(x) = x^4 + 12x^2 + 35$

4) $f(x) = x^3 + 4x^2 + 5x + 2$

Find all zeros.

5) $f(x) = x(2x - 3)(x - 5)$

6) $f(x) = x(2x + 1)(x - 5)$

7) $f(x) = x(5x - 3)(x - 3)$

8) $f(x) = x(5x + 2)(x - 2)$

Use the Remainder Theorem to evaluate each function at the given value.

9) $f(n) = n^3 - 4n^2 - 18n - 21$ at $n = -2$

10) $f(x) = -4x^2 + 11x - 10$ at $x = 2$

11) $f(x) = x^2 - 4x - 2$ at $x = -2$

12) $f(n) = n^3 - 3n^2 - 6n + 6$ at $n = 3$

State the possible rational zeros for each function.

13) $f(x) = 5x^3 - 31x^2 + 31x - 5$

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

15) $f(x) = 2x^3 + 5x^2 + 4x + 1$

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

State the possible rational zeros for each function. Then find all rational zeros.

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

18) $f(x) = x^3 + 9x^2 + 15x + 7$

19) $f(x) = x^2 + 7x + 10$

20) $f(x) = x^2 - 8x + 17$