Algebra 2

Name_____

Solving Polynomial Equations

Find all roots.

1) $x^2 - 2x + 17 = 0$

2) $(x^2 + 9)(x^2 + 5) = 0$

3) $(x^2 - 6)(x - 1)(x + 1) = 0$

4) $(x^2 - 5)(x^2 + 6) = 0$

Factor each and find all roots.

5) $x^3 - 3x^2 + 2x = 0$

6) $x^2 + 4x - 5 = 0$

7) $x^2 - 4x + 3 = 0$

8) $x^2 - 3x + 2 = 0$

Find all roots. Use the quadratic formula, as these are not factorable.

9) $x^2 + 2x - 33 = 0$

10) $x^2 - 8x - 15 = 0$

11) $x^2 + 8x + 32 = 0$

12) $x^2 - 2x - 42 = 0$

Factor each and find all roots. One root has been given.

13) $5x^3 + 16x^2 + 13x + 2 = 0; \; -2$

14) $5x^3 - 11x^2 - 13x + 3 = 0; \; 3$

15) $3x^3 - 4x^2 - 5x + 2 = 0$; 2

16) $5x^3 - 21x^2 + 19x - 3 = 0$; 3

17) $2x^3 - 5x^2 + x + 2 = 0$; 2

18) $x^4 - 8x^3 + 14x^2 + 8x - 15 = 0$; 5

19) $4x^4 + 21x^3 + x^2 - 21x - 5 = 0$; −5

20) $3x^3 - 17x^2 + 9x + 5 = 0$; 5

21) $3x^3 + 13x^2 + 13x + 3 = 0;\ -3$

22) $2x^3 + 3x^2 - 3x - 2 = 0;\ -2$

23) $5x^4 + 6x^3 - 84x^2 + 58x + 15 = 0;\ 3$

24) $2x^4 - 7x^3 - 15x^2 - x + 5 = 0;\ 5$

25) $2x^4 - x^3 - 6x^2 + 7x - 2 = 0;\ -2$

26) $2x^3 - 11x^2 + 4x + 5 = 0;\ 5$