

Solving Extra Practice

Date _____ Block _____

Factor each and find all roots.

1) $x^5 + x^3 - 20x = 0$

2) $x^4 + 13x^2 + 42 = 0$

3) $x^4 + 11x^2 + 24 = 0$

4) $x^4 + 7x^2 + 10 = 0$

5) $x^4 - 2x^2 - 8 = 0$

6) $x^3 - 5x^2 - 4x + 20 = 0$

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

8) $x^5 - 16x = 0$

9) $x^3 + 1 = 0$

10) $x^3 + 8 = 0$

Answers to Solving Extra Practice

1) Factors to: $x(x-2)(x+2)(x^2+5) = 0$

Roots: $\{0, 2, -2, i\sqrt{5}, -i\sqrt{5}\}$

3) Factors to: $(x^2+8)(x^2+3) = 0$

Roots: $\{2i\sqrt{2}, -2i\sqrt{2}, i\sqrt{3}, -i\sqrt{3}\}$

5) Factors to: $(x^2+2)(x-2)(x+2) = 0$

Roots: $\{i\sqrt{2}, -i\sqrt{2}, 2, -2\}$

7) Factors to: $(x-1)(x+1)(x^2+3) = 0$

Roots: $\{1, -1, i\sqrt{3}, -i\sqrt{3}\}$

9) Factors to: $(x+1)(x^2-x+1) = 0$

Roots: $\left\{-1, \frac{1+i\sqrt{3}}{2}, \frac{1-i\sqrt{3}}{2}\right\}$

2) Factors to: $(x^2+7)(x^2+6) = 0$

Roots: $\{i\sqrt{7}, -i\sqrt{7}, i\sqrt{6}, -i\sqrt{6}\}$

4) Factors to: $(x^2+5)(x^2+2) = 0$

Roots: $\{i\sqrt{5}, -i\sqrt{5}, i\sqrt{2}, -i\sqrt{2}\}$

6) Factors to: $(x-5)(x-2)(x+2) = 0$

Roots: $\{5, 2, -2\}$

8) Factors to: $x(x-2)(x+2)(x^2+4) = 0$

Roots: $\{0, 2, -2, 2i, -2i\}$

10) Factors to: $(x+2)(x^2-2x+4) = 0$

Roots: $\{-2, 1+i\sqrt{3}, 1-i\sqrt{3}\}$