

## Solving Polynomial Equations

**Solve each equation.**

1)  $2n^3 - n^2 - 136n = 0$

2)  $5x^3 + 4x^2 - 57x = 0$

3)  $6n^4 + 9n^3 + 3n^2 = 0$

4)  $2n^3 + 24n^2 - 56n = 0$

5)  $x^3 - x = 0$

6)  $2r^5 - 6r^4 - 56r^3 = 0$

7)  $12b^3 - 2b^2 - 30b = 0$

8)  $4r^4 - 64r^2 = 0$

9)  $12b^3 + 6b^2 = 18b$

10)  $6v^3 - 42v = -4v^2$

11)  $2n^4 - 27n^2 = -3n^3$

12)  $5y^3 - 126y = 9y^2$

13)  $6r^3 + 5r^2 + 2r = 9r^2 + 4r^3$

14)  $16x^3 - 28x^2 + 4x = -8x$

15)  $34n^3 - 48n = 22n^3$

16)  $2x^3 - 4x^2 - 96x = -8x^2$

17)  $3r^3 + 8r^2 = 9r + 5r^2$

18)  $10x^3 - 20x = -5x^2$

19)  $12v^3 + 18v = 30v + 12v^2$

20)  $3x^4 - 3x^3 = 10x^2$

## Answers to Solving Polynomial Equations

1)  $\{0, \frac{17}{2}, -8\}$

2)  $\{0, 3, -\frac{19}{5}\}$

3)  $\{0, -\frac{1}{2}, -1\}$

4)  $\{0, 2, -14\}$

5)  $\{0, 1, -1\}$

6)  $\{0, 7, -4\}$

7)  $\{0, \frac{5}{3}, -\frac{3}{2}\}$

8)  $\{0, 4, -4\}$

9)  $\{0, 1, -\frac{3}{2}\}$

10)  $\{0, \frac{7}{3}, -3\}$

11)  $\{0, 3, -\frac{9}{2}\}$

12)  $\{0, 6, -\frac{21}{5}\}$

13)  $\{0, 1\}$

14)  $\{0, 1, \frac{3}{4}\}$

15)  $\{0, 2, -2\}$

16)  $\{0, 6, -8\}$

17)  $\{0, \frac{-1 + \sqrt{13}}{2}, \frac{-1 - \sqrt{13}}{2}\}$

18)  $\{0, \frac{-1 + \sqrt{33}}{4}, \frac{-1 - \sqrt{33}}{4}\}$

19)  $\{0, \frac{1 + \sqrt{5}}{2}, \frac{1 - \sqrt{5}}{2}\}$

20)  $\{0, \frac{3 + \sqrt{129}}{6}, \frac{3 - \sqrt{129}}{6}\}$