

Solving Equations by Factoring (ALG.FAC.08)

Solve each equation by factoring.

1. $a^3 - 4a^2 - 21a = 0$ $a = -3, 0, 7$

2. $2b^3 + 5b^2 - 8b - 20 = 0$ $b = -\frac{5}{2}, \pm 2$

3. $2c^5 - 32c = 0$ $c = 0, \pm 2$

4. $6d^3 = 2d(20 - 7d)$ $d = -\frac{4}{3}, 0, \frac{5}{3}$

5. $4f^4 - 37f^2 = -9$ $f = \pm\frac{1}{2}, \pm 3$

6. $x^5 + x^3(5x + 6) - 4x^3 = 4x(5x + 6)$ $x = -3, 0, \pm 2$

7. $9k^4 + 4 = 13k^2$ $k = \pm 1, \pm\frac{2}{3}$

8. $6m^3 + 24m^2 = 126m$ $m = -7, 0, 3$

9. $2n^8 - 2n^6 + 2n^5 - 2n^3 = 0$ $n = 0, \pm 1$

10. $12p^3 + 6p^2 = 90p$ $p = -3, 0, \frac{5}{2}$

11. $91r^4 + 35r^3 = -42r^5$ $r = -\frac{5}{3}, -\frac{1}{2}, 0$

12. $t^2 + 36 = 12t$ $t = 6$

13. $-20u^6 + 12u^5 + 20u^4 - 12u^3 = 0$ $u = 0, \frac{3}{5}, \pm 1$

14. $-5x^2 + 8 = 18x$ $x = -4, \frac{2}{5}$

15. $49y^4 = 25y^2$ $y = 0, \pm\frac{5}{7}$

16. $15m^5 - 6m^4 - 135m^3 + 54m^2 = 0$ $m = 0, \frac{2}{5}, \pm 3$

17. $-8q^3 - 38q^2 = -10q$ $q = -5, 0, \frac{1}{4}$

18. $3x^3 + 9x^2 = 27x + 81$ $x = \pm 3$

19. $15n^2(2n + 1) - 29n(2n + 1) - 14(2n + 1) = 0$ $n = -\frac{1}{2}, -\frac{2}{5}, \frac{7}{3}$

20. $3x^9 - 3x^7 - 21x^6 + 21x^4 - 24x^3 + 24x = 0$ $x = 0, \pm 1, 2$