

Four-Function Calculator!!

Factor & find the zeros.

1. $x^2 - 6x + 5$ 2. $x^2 - 25$ 3. $2x^4 - 8x^2 - x^2 + 4$
4. $2x^2 - 15x + 7$ 5. $x^2 + 3x + 2x + 6$ 6. $2x^3 + x^2 - 8x - 4$

Solve by factoring.

7. $4x^3 - 4x^2 + 7x = 7$

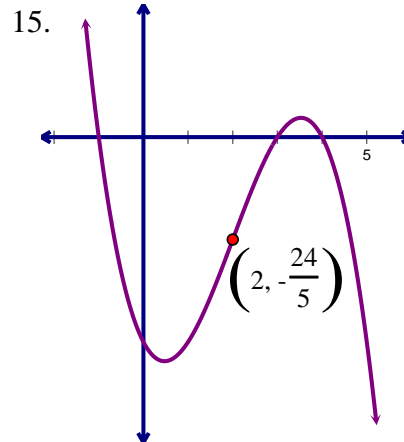
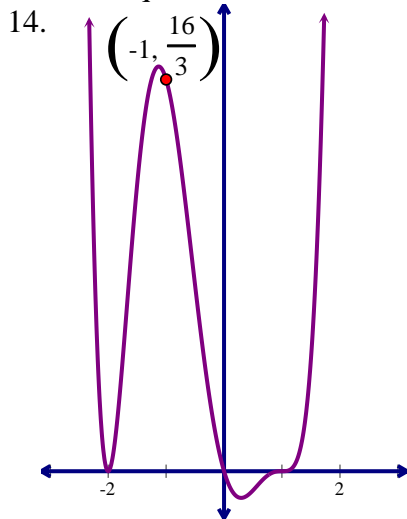
Divide.

8. $(15x^5 - 5x^4 + 80x^3 + 20x^2) \div (5x^2)$ 9. $(x^3 + 10x^2 + 11x - 70) \div (x - 2)$
10. $(2x^3 - 7x^2 + 9) \div (x + 1)$

Use long division to determine whether the statement is true or false, if it is true completely factor the polynomial.

11. $x + 4$ is a factor of $3x^3 + 32x^2 + 81x + 4$ 12. -1 is a root of $3x^2 - 10x - 8$
13. 4 is a root of $4x^3 + 2x^2 - 15x + 7$

Find the equation of the function.



16. A cubic function with roots $x = -2$, $x = 7$ and $x = 10$ and passes through $(1, -810)$.
17. A seventh degree function with roots $x = \frac{3}{2}$, $x = 3$ (double), $x = -1$, $x = -5$ (triple) and passes through $(-2, 945)$

Rewrite in standard form.

18. $f(x) = -2(x-1)(x+4)(x-5)$ 19. $g(x) = \frac{1}{2}(x-4)(x+4)(x-6)$
20. $j(x) = (5x-1)^2(x+3)$

Find the degree, the leading coefficient and the root. Then, sketch the end behavior.

21. $a(x) = x^3(2x-1)(-x+4)(3x-5)$

22. $d(x) = -3x^7 + 15x^9 - 20x^{10} + 4x^{11}$

Sketch the function.

23. $f(x) = x^2(x-3)^7(x+2)^5(x+3)^4$

24. $g(x) = -3x(x+5)^2(x-4)^{12}$

Simplify.

25. $\frac{7}{2} + \frac{9}{8} \cdot 4$

26. $\frac{3}{5} \cdot \frac{50}{9} + \frac{28}{12} \div 7$

Expand.

27. $(x-3)^5$

28. $(6x+1)^4$

29. $(2x+5y)^3$

Solve for x.

30. $\frac{x}{2} + \frac{x}{7} = 25$

31. $3x - \frac{x}{4} = 20$