

Practice

For each function, use the techniques shown in this section to sketch the graph of the function. Use $f(x)$ to find the domain, intercepts, and asymptotes. Use $f'(x)$ to find the critical numbers, intervals of increase or decrease, and local extrema. Use $f''(x)$ to find concavity and points of inflection.

1. $f(x) = (x - 1)^{\frac{1}{3}}$

2. $f(x) = (x - 4)^{\frac{2}{3}}$

3. $f(x) = \sqrt{x + 5}$

4. $f(x) = \sqrt{(x + 3)^2}$

5. $f(x) = \frac{15}{x + 3}$

6. $f(x) = (2x - 4)^{-2}$

7. $f(x) = (x^3 + x)^2$

8. $f(x) = (x^2 - 9)^2$

9. $f(x) = x(x^2 - 12)$

10. $f(x) = x\sqrt{4 - x}$

11. $f(x) = \frac{x}{(x - 2)^2}$

12. $f(x) = \frac{x}{\sqrt{x^2 - 1}}$

13. $f(x) = \frac{(x - 1)^2}{(x + 1)^3}$

14. $f(x) = (x^2 + 1)^2(x^2 - 1)^3$

15. $f(x) = \left(\frac{x - 2}{x + 3}\right)^2$

Answers

