



Q6. Sketch the graph of $y = \cos x$.

Q7. Factor: $x^2 + 5x - 6$

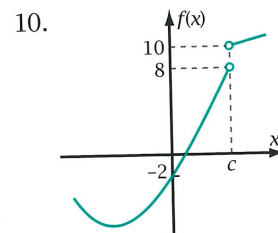
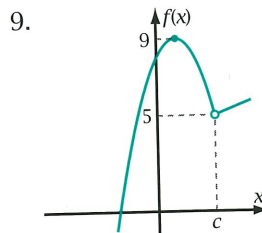
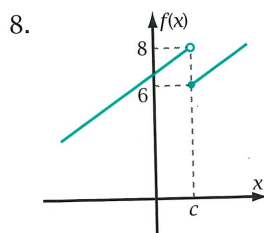
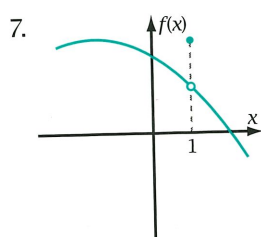
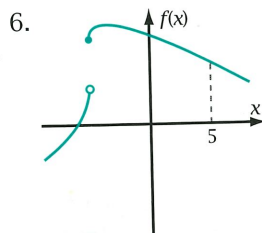
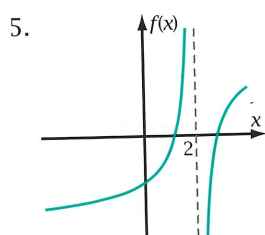
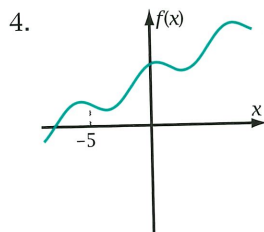
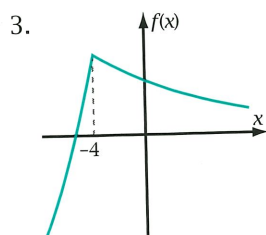
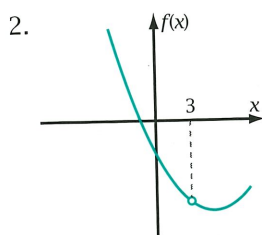
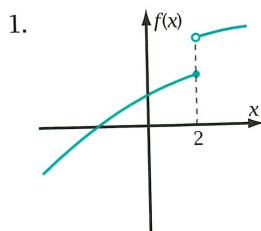
Q8. Evaluate: $53^{2001}/53^{2000}$

Q9. Evaluate: $5!$

Q10. Quick! Divide 50 by $\frac{1}{2}$ and add 3.

For Problems 1–10, state whether the graph illustrates a function that

- Has left and right limits at the marked value of x .
- Has a limit at the marked value of x .
- Is continuous at the marked value of x . If it is not continuous there, explain why.



For Problems 11–20, sketch the graph of a function that has the indicated features.

- Is continuous at $x = 3$ but has a cusp there.
- Is continuous at $x = 4$ and is “smooth” there.
- Has no value for $f(5)$ but has a limit as x approaches 5.
- Has a value for $f(-2)$ but has no limit as x approaches -2 .
- Has a vertical asymptote at $x = 6$.
- Has a value for $f(2)$ and a limit as x approaches 2, but is not continuous at $x = 2$.
- Has a step discontinuity at $x = -2$, and $f(-2) = 10$.
- The limit of $f(x)$ as x approaches 5 is -2 , and the value for $f(5)$ is also -2 .
- The limit of $f(x)$ as x approaches 1 is 4, but $f(1) = 6$.
- $f(3) = 5$, but $f(x)$ has no limit as x approaches 3 and no vertical asymptote there.

For Problems 21–24, state where, if anywhere, the function is discontinuous.

21. $f(x) = \frac{x-4}{x+3}$

22. $f(x) = \frac{x+5}{x-11}$

23. $g(x) = \tan x$

24. $g(x) = \cos x$

For Problems 25–30, the function is discontinuous at $x = 2$. State which part of the definition of continuity is not met at $x = 2$. Plot the graph on your grapher. (Note: The symbol $\text{int}(n)$ indicates the greatest integer less than or equal to n . Graph in dot mode.) Sketch the graph.

25. $f(x) = x + \text{int}(\cos \pi x)$