

Mystery Graph Competition

Sketch the graph of a function f that satisfies all of the following properties.

Each condition correctly satisfied is worth 1 point.

The first team to 10 points wins a valuable prize!

1. The domain of f is $(-\infty, -2) \cup (-2, \infty)$.
2. The range of f is $(-3, \infty)$.
3. The graph of f has a vertical asymptote at $x = -2$.
4. $\lim_{x \rightarrow -\infty} f(x) = 2$
5. $\lim_{x \rightarrow \infty} f(x) = -3$
6. $\lim_{x \rightarrow 3} f(x) = 1$
7. f is discontinuous at $x = 3$.
8. $f'(x) > 0$ on $(-\infty, -2)$
9. $f'(x) < 0$ on $(-2, 3)$
10. $f'(4)$ is not defined, but f is continuous at $x = 4$.