

20. Sketch the graph of f' if the graph of f appears as in Figure 4.

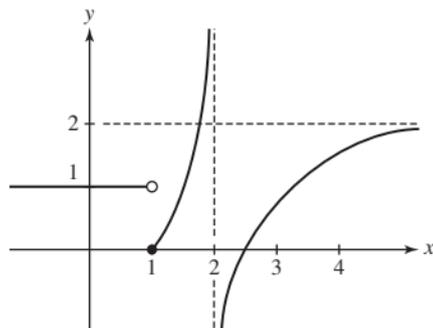


FIGURE 4

SOLUTION Examine Figure 4. For $x < 1$, f is constant, so $f'(x) = 0$. For $1 \leq x < 2$ and $x > 2$, f is increasing, so f' must be positive on these intervals. As $x \rightarrow 1^+$, the slope of the tangent line appears to approach 1, while as $x \rightarrow 2^-$, the slope of the tangent line appears to approach ∞ . Moreover, as $x \rightarrow 2^+$, the slope of the tangent line appears to approach ∞ , while as $x \rightarrow \infty$, the slope of the tangent line appears to approach 0. Bringing this information together, one possible graph for f' is shown below.

