- **Obtaining the graph of *f* ' from the graph of *f*.**

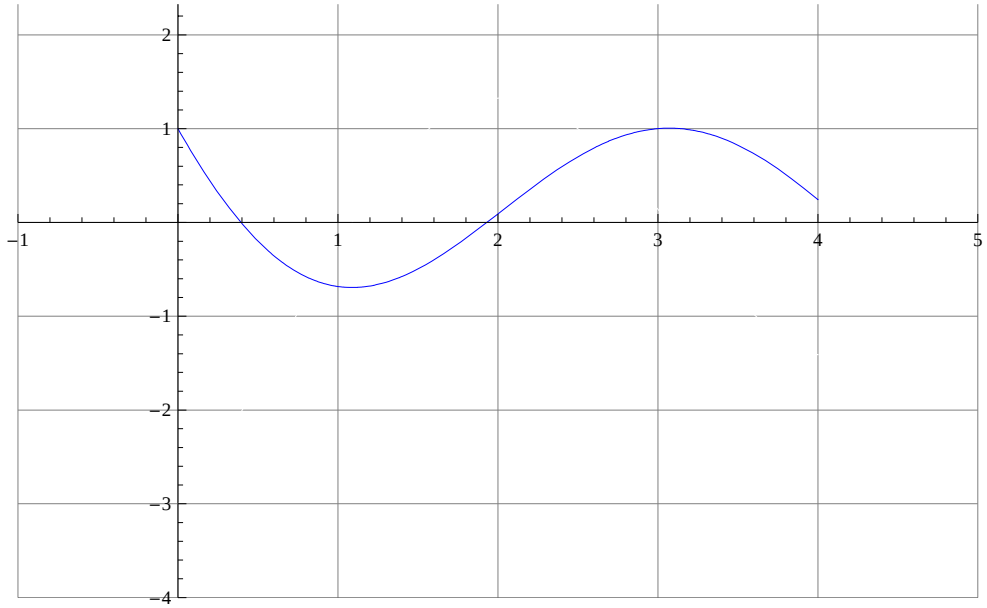
The slope of $f(x)$ at $x = a$ equals $f'(a)$.

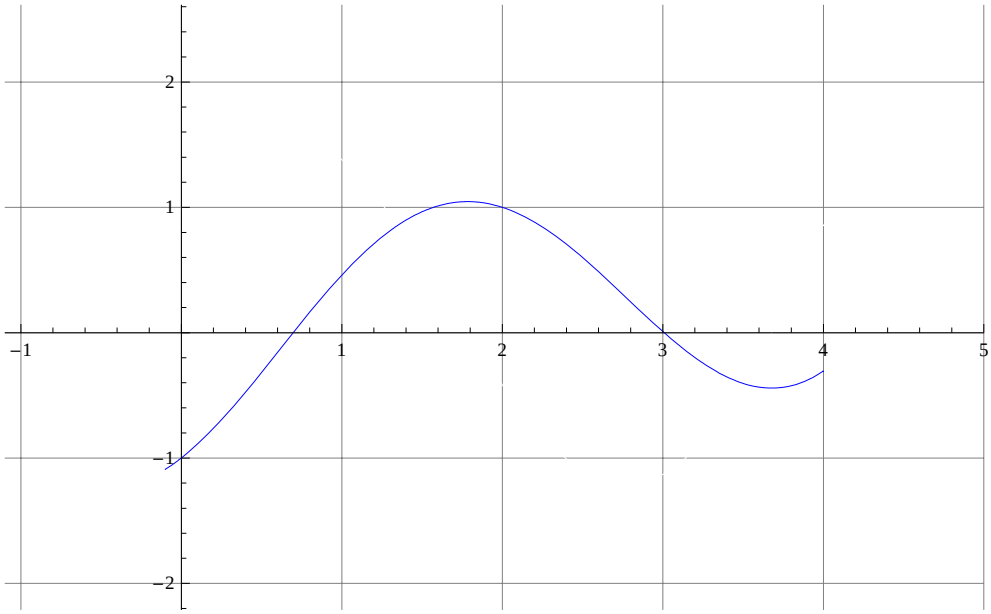
(The slope of $f(x)$ at $x = a$ is zero) $\iff$ $f'(a) = 0$

(The slope of $f(x)$ at $x = a$ is positive) $\iff$ $f'(a) > 0 \iff$ $f'(a)$ is above the x-axis.

(The slope of $f(x)$ at $x = a$ is negative) $\iff$ $f'(a) < 0 \iff$ $f'(a)$ is below the x-axis.

1. Mark on the x-axis the values of $x$ where $f$ has zero slope.
2. Between locations where $f$ has zero slope, mark on the x-axis where the slope of $f$ is steepest. Get a numerical estimate of the slope at each of these points by sketching a tangent.
3. Sketch $f'(x)$.




3.1 : 1, 2, 3 – 41 (odd), 46, 49, 51, 55, 59, 63, 71, 78
3.2 : 1, 2, 3 – 33 (odd), 37, 39, 43, 45, 47, 51, 54
3.3 : 1 – 23 (odd), 33, 35, 37, 39, 41
3.4 : 1 – 53 (odd), 61, 65, 73, 77, 89
3.5 : 1 – 27 (odd), 37, 45, 47, 63, 69
3.6 : 1 – 33 (odd), , 37, 43, 49, 50
3.7 : 1 – 23 (odd), 27, 29
3.8 : 1, 3, 5, 7, 9, 15, 17
3.9 : 1, 5, 10, 11 – 14, 15, 19, 23, 25, 30, 40, 43, 44
3.10 : 1, 3, 15, 19, 23, 31, 35, 43