

DATE: _____

**What are these directions asking you to do?
(Don't actually solve the problems. Just describe what is being asked.)**

1. Use the definition of the derivative to find $f'(x)$ for $f(x) = 5x - 7$
2. Find $\frac{dy}{dx}$, if $y = 3x^2 + 4x - 7$
3. Find $f'(2)$ for $f(x) = x^2 + 5$
4. If $f(4) = 7$ and $f'(4) = 2$, find the equation of the normal line.
5. Find where the function is increasing.
6. Find where the function is increasing at the fastest rate.
7. Find where the rate of change is zero.
8. Let $f(x) = 5x - 7$. Find all the points where f has horizontal tangents.