

Process for Finding the Intervals of Increase and Decrease

1. If possible, factor f' . If f' is a quotient, factor the numerator and denominator (separately). This will help you find the sign of f' .
2. **Find all critical numbers** $x = c$ of f .
3. **Draw a number line** with tick marks at each critical number c .
4. For each interval (in between the critical number tick marks) in which the function f is defined, pick a number b , and use it to **find the sign of the derivative** $f'(b)$.
5. If $f'(b) > 0$, draw a straight line slanting upward over that interval on your number line. Similarly, if $f'(b) < 0$, draw a straight line slanting downward.
6. That's it! You can now see the intervals where f is increasing and decreasing.