

1. For the function $f(x) = \sec(x) + Bx^2$ What value or values must B assume if $f(x)$ is concave up at $x = \pi$?
2. For the function $f(x) = 6x^3 - 6Bx^2 + 5$ What value or values of B will cause $f(x)$ to be decreasing at $x = 2$?
3. For the function $f(x) = \frac{x^3 + 5}{x^{2B} + 1}$ What value or values must B assume if $\lim_{x \rightarrow \infty} f(x) = 1$?
4. For the function $f(x) = \sin(x) - Bx^2$ Assume $f(x)$ has an inflection point at $x = \pi/6$. What value or values must B assume?