

Extra Problem Section 3.5

- 3.5.x1. Let $f(x) = x^2$ and $g(x) = x^2 + \sin x$.
- Show that $g'(x) > 0$ for $x > 0$. [Hint: Consider two cases separately: $0 < x < \pi/2$, and $x > 1/2$. Note that these (overlapping) cases cover all positive x .]
 - Show that the graphs of both f and g are increasing and concave up for $x > 0$.
 - Show that the graphs of f and g have infinitely many points of intersection for $x > 0$.