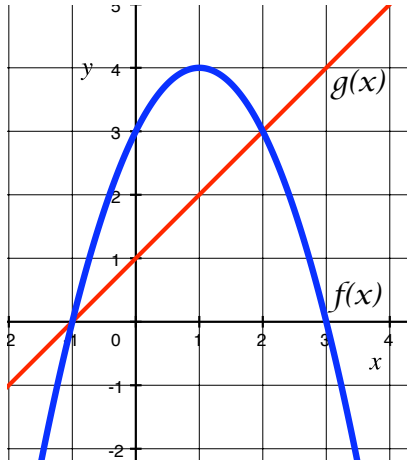


1. (3 pts.) Find the vertex and the range of the function $h(x) = 3x^2 + 12x + 1$.
2. (2 pts.) Find an equation of a **quadratic** function with the vertex $(3, -1)$ and x -intercept $(5, 0)$.
3. (2 pts.) Decompose the function $F(x) = (3x^2 + 10)^7$ into two functions $u(x)$ and $v(x)$ such that $u(v(x)) = f(x)$. (with $u(x) \neq x$ and $v(x) \neq x$)
4. The graphs of $f(x)$ and $g(x)$ are given below.



- (a) (1 pt.) Find $f(g(0))$.
- (b) (2 pts.) For $x = 3$, find:
 - i. $f(x) + g(x)$
 - ii. $f(x) \cdot g(x)$