2,5,21,25

Exercises 2.5.21 and 2.5.25 Write the function whose graph is the graph of $y = x^3$ but is: (21) shifted up 4 units, (25) vertically stretched by a factor of 5.

Solutions

(2.5.21) To shift the graph of $y = f(x)$ up h units, we consider the new function $y = f(x) + h$ where $h > 0$. So to shift $y = x^3$ up $h = 4$ units, we consider the function $\boxed{f(x) = x^3 + 4}$.

(2.5.25) To vertically stretch the graph of $y = f(x)$, we consider the new function $y = a f(x)$ where $a > 1$. So to vertically stretch by a factor of $a = 5$, we consider the function $\boxed{f(x) = 5x^3}$.

□