

If $f(x) = 4x$, $g(x) = 2x - 1$, and $h(x) = x^2 + 1$,

42. $[g \circ (f \circ h)](3)$

$$h(3) = 3^2 + 1 = 10$$

$$f[h(3)] = f(10) = 4(10) = 40$$

$$g(f[h(3)]) = g(40) = 2(40) - 1 = 79$$

31. $g(x) = x - 4$

$$h(x) = 3x^2$$

$$[g \circ h](x) = g[h(x)] = g(3x^2) = 3x^2 - 4$$

$$\begin{aligned} [h \circ g](x) &= h[g(x)] = h(x - 4) = 3(x - 4)^2 \\ &= 3(x - 4)(x - 4) \\ &= 3(x^2 - 4x - 4x + 16) \\ &= 3x^2 - 12x - 12x + 48 \end{aligned}$$

$$[h \circ g](x) = 3x^2 - 24x + 48$$

number of units $b(x)$ in the
 $b(x) = -8x + 4045$, and the
function $d(x) = 24x + 2160$,

$$P = b - d$$

$$P(x) = b(x) - d(x)$$

$$P(x) = (-8x + 4045) - (24x + 2160)$$

$$= -8x + 4045 - 24x - 2160$$

$$P(x) = -32x + 1885$$

$$\textcircled{15} \left(\frac{f}{g} \right)(x) = \frac{f(x)}{g(x)} = \frac{2x-3}{4x+9}, x \neq -\frac{9}{4}$$

$$4x+9=0$$

$$4x=-9$$

$$x=-\frac{9}{4}$$

