

1. Suppose that $f(x) = -2x^2 + 5$, which of the following shows the expression for $f[f(x)]$?
 - A. $f[f(x)] = 4x^4 - 20x^3 - 25$
 - B. $f[f(x)] = 4x^4 - 20x^3 - 25$
 - C. $f[f(x)] = -8x^4 - 40x^2 - 50$
 - D. $f[f(x)] = -8x^4 + 40x^2 - 50$
2. Suppose that $f(x) = \frac{1}{x-1}$, $g(x) = \frac{\sqrt{x}}{x}$, and $h(x) = x^2$, which of the following shows the expression for $f[f(x)]$?
 - A. $f[g[h(x)]] = \frac{x}{1-x}$
 - B. $f[g[h(x)]] = \frac{1}{1-x}$
 - C. $f[g[h(x)]] = \frac{1}{x} - 1$
 - D. $f[g[h(x)]] = \frac{1}{x} + 1$
3. Which of the following shows the composite function when the inner function is a square root function, $y = \sqrt{3x - 2}$ and the outer function is given by $y = 2x^2 - 1$?
 - A. $3x - 3$
 - B. $6x - 5$
 - C. $3x + 3$
 - D. $6x + 5$
4. Suppose that $f(x) = 4x^2 - 1$ and $g(x) = 1 - x$, which of the following shows the expression for $f[g(x)]$?
 - A. $2 - 4x^2$
 - B. $4x^2 - 2$
 - C. $4x^2 - 8x - 3$
 - D. $4x^2 - 8x + 3$

5. Suppose that $f(x) = \frac{1}{x}$ and $g(x) = (x - 1)(x + 3)$, which of the following shows the expression for $g[f(x)]$?

A. $\frac{2}{x^2} + \frac{1}{x} + 3$

B. $\frac{1}{x^2} + \frac{1}{x} - 3$

C. $\frac{1}{x^2} + \frac{2}{x} - 3$

D. $\frac{1}{x^2} + \frac{2}{x} + 3$

