3.	$f(x) + g(x) = -3x^{1/3} + 4x^{1/2} + 5x^{1/3} + 4x^{1/2}$ $= (-3 + 5)x^{1/3} + (4 + 4)x^{1/2}$ $= 2x^{1/3} + 8x^{1/2}$ Domain: all nonnegative real numbers
5.	$f(x) + f(x) = -3x^{1/3} + 4x^{1/2} + \left(-3x^{1/3} + 4x^{1/2}\right)$ $= (-3 - 3)x^{1/3} + (4 + 4)x^{1/2}$ $= -6x^{1/3} + 8x^{1/2}$ Domain: all nonnegative real numbers
7.	$f(x) - g(x) = -3x^{1/3} + 4x^{1/2} - \left(5x^{1/3} + 4x^{1/2}\right)$ $= (-3 - 5)x^{1/3} + (4 - 4)x^{1/2}$ $= -8x^{1/3}$ Domain: all nonnegative real numbers
9.	$f(x) - f(x) = -3x^{1/3} + 4x^{1/2} - \left(-3x^{1/3} + 4x^{1/2}\right)$ $= (-3 + 3)x^{1/3} + (4 - 4)x^{1/2}$ $= 0$ Domain: all nonnegative real numbers
11.	B; $f(x) + g(x) = -7x^{2/3} - 1 + 2x^{2/3} + 6$ $= (-7 + 2)x^{2/3} - 1 + 6$ $= -5x^{2/3} + 5$
13.	$g(x) \cdot f(x) = 5x^{1/2} \cdot 4x^{2/3}$ $= 20x^{(1/2 + 2/3)}$ $= 20x^{7/6}$ Domain of g: all nonnegative real numbers Domain of f: all real numbers Domain of $g \cdot f$: all nonnegative real numbers

15.	$g(x) \cdot g(x) = 5x^{1/2} \cdot 5x^{1/2}$ $= 25x^{(1/2 + 1/2)}$ $= 25x$ Domain of g: all nonnegative real numbers Domain of $g \cdot g$: all nonnegative real numbers
17.	$\frac{g(x)}{f(x)} = \frac{5x^{1/2}}{4x^{2/3}} = \frac{5x^{(1/2 - 2/3)}}{4} = \frac{5x^{-1/6}}{4} = \frac{5}{4x^{1/6}}$ Domain of f: all real numbers Domain of g: all nonnegative real numbers Domain of $\frac{g}{f}$: all positive real numbers
19.	$\frac{g(x)}{g(x)} = \frac{5x^{1/2}}{5x^{1/2}} = 1$ Domain of g: all nonnegative real numbers Domain of $\frac{g}{g}$: all positive real numbers
21.	$f(2) = 3(2) + 2 = 8$ $g(f(2)) = g(8) = -8^2 = -64$
23.	$h(8) = \frac{8 - 2}{5} = \frac{6}{5}$ $g(h(8)) = g\left(\frac{6}{5}\right) = -\left(\frac{6}{5}\right)^2 = -\frac{36}{25}$
25.	$f(7) = 3(7) + 2 = 23$ $f(f(7)) = f(23) = 3(23) + 2 = 71$
27.	$g(-5) = -(-5)^2 = -25$ $g(g(-5)) = g(-25) = -(-25)^2 = -625$
29.	$g(f(x)) = g(3x^{-1}) = 2(3x^{-1}) - 7 = 6x^{-1} - 7 = \frac{6}{x} - 7$ The domain of $g(f(x))$ consists of all real numbers except $x = 0$ because 0 is not in the domain of f.

31.	$g(h(x)) = g\left(\frac{x+4}{3}\right) = 2\left(\frac{x+4}{3}\right) - 7$ $= \frac{2x+8}{3} - 7 = \frac{2x+8-21}{3} = \frac{2x-13}{3}$ The domain of $g(h(x))$ consists of all real numbers.
33.	$f(f(x)) = f(3x^{-1}) = 3(3x^{-1})^{-1} = 3(3^{-1}x) = 3^0x = x$ The domain of $f(f(x))$ consists of all real numbers except $x = 0$, because 0 is not in the domain of f.
35.	$g(g(x)) = g(2x-7) = 2(2x-7) - 7$ $= 4x - 14 - 7 = 4x - 21$ The domain of $g(g(x))$ consists of all real numbers.