Name _____ Date _____

5.5 Practice A

In Exercises 1 and 2, find $(f + g)(x)$ and $(f - g)(x)$ and state the domain of each. Then evaluate $f + g$ and $f - g$ for the given value of x.

1. $f(x) = -3\sqrt[4]{x}; g(x) = 15\sqrt[4]{x}; x = 81$

2. $f(x) = 9x + 2x^2; g(x) = x^2 - 3x + 7; x = 1$

In Exercises 3–5, find $(fg)(x)$ and $\left(\frac{f}{g}\right)(x)$ and state the domain of each. Then evaluate fg and $\frac{f}{g}$ for the given value of x.

3. $f(x) = x^2; g(x) = 2\sqrt{x}; x = 9$

4. $f(x) = 10x^3; g(x) = 4x^{5/3}; x = 8$

5. $f(x) = 4x^{2/3}; g(x) = 2x^{1/3}; x = -27$

In Exercises 6 and 7, use a graphing calculator to evaluate $(f + g)(x)$, $(f - g)(x)$, $(fg)(x)$, and $\left(\frac{f}{g}\right)(x)$ when $x = 5$. Round your answers to two decimal places.

6. $f(x) = 5x^3; g(x) = 20x^{1/4}$

7. $f(x) = 4x^{2/3}; g(x) = 16x^{4/3}$

8. Describe and correct the error in stating the domain.

> ✗ $f(x) = 4x^{1/2} + 2$ and $g(x) = -4x^{1/2}$
>
> The domain of $(f + g)(x)$ is all real numbers.

9. The growth of mold in Specimen A can be modeled by $A(t) = \frac{5}{6}t^{2/3}$. The growth of mold in Specimen B can be modeled by $B(t) = \frac{1}{3}t^{2/3}$.

   a. Find $(A - B)(t)$.

   b. Explain what the function $(A - B)(t)$ represents.