Name _____ Date _____

LESSON 7.4

Challenge Practice

For use with the lesson "Write and Graph Exponential Growth Functions"

In Exercises 1–5, find an exponential function of the form $f(x) = ab^x$ that passes through the given points.

1. $(0, 1), (2, 9), (4, 81)$
2. $(0, 3), (1, 6), \left(-1, \frac{3}{2}\right)$
3. $\left(0, \frac{1}{2}\right), \left(-1, \frac{1}{10}\right), \left(3, \frac{125}{2}\right)$
4. $\left(0, \frac{1}{9}\right), \left(1, \frac{1}{3}\right), (2, 1)$
5. $\left(0, \frac{3}{2}\right), (1, 3), (3, 12)$

In Exercises 6–10, use the properties of exponents to write both functions so that each has the same constant raised to a power, then determine which function has the greater value when $x = 1$.

6. $f(x) = 3 \cdot 2^{8x}$

   $g(x) = 3 \cdot 4^{6x}$
7. $f(x) = 2 \cdot 4^{2x-1}$

   $g(x) = 5 \cdot 16^{x+2}$
8. $f(x) = 25^{x+1}$

   $g(x) = \left(\frac{1}{5}\right)^{-2x}$
9. $f(x) = 6 \cdot 16^x$

   $g(x) = \frac{1}{2} \cdot 64^x$
10. $f(x) = 1000 \cdot (2.25)^{5x}$

    $g(x) = 2000 \cdot (1.5)^{3x}$

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