Name: _____ Class: _____ Date: _____

Algebra 2 CP Mid-Chapter 7 Practice

COMPLETE EACH PROBLEM WITH WORK ON A SEPARATE SHEET OF PAPER.

1. Evaluate each expression.

   a) $\sqrt[5]{-32}$ b) $\left(\sqrt[3]{125}\right)^{-2}$ c) $16^{3/4}$

2. Simplify each expression.

   a) $6^{10/7} \cdot 6^{4/7}$ b) $\dfrac{15^{2/3}}{15^{3/5}}$ c) $\sqrt[4]{\dfrac{16c^4e^{20}}{81d^8}}$

   d) $\sqrt{72x^5y^{13}}$ e) $\sqrt[3]{\dfrac{2x^2}{9y^5}}$ f) $\sqrt{162} - \sqrt{50} + \sqrt{32}$

3. Let $f(x) = -7x^{1/4} + 3x^{1/5}$ and $g(x) = -x^{1/4} + 2x^{1/5}$. Find $f(x) + g(x)$.

4. Let $f(x) = 1 - x^2$ and $g(x) = 1 - x$. Find $f(x) - g(x)$.

5. Let $f(x) = x^6$ and $g(x) = 5x^4$. Find $\dfrac{f(x)}{g(x)}$.

6. Let $f(x) = 5x^{1/3}$ and $g(x) = 7x^{3/4}$. Find $f(x) \cdot g(x)$.

7. Let $f(x) = -9x^{2/3}$ and $g(x) = 3x^{1/5}$. Find $f(x) \cdot g(x)$.

8. Let $f(x) = \dfrac{3}{x}$ and $g(x) = x + 4$. Find $f\big(g(x)\big)$.

9. Let $g(x) = 4x^2$. Find $g\big(g(1)\big)$.

10. Let $f(x) = 2x$ and $g(x) = x^4 - 3$. Find $g(f(x))$.

11. Let $f(x) = x^2 - 2$ and $g(x) = x^3 - 1$. Find $f(g(-1))$.

12. Find the inverse of $f(x) = \dfrac{7x - 3}{16}$.

13. Find the inverse of $f(x) = \dfrac{1}{2}x^2 + 5$.

14. Verify that f and g are inverse functions if $f(x) = 8x^3$ and $g(x) = \dfrac{x^{1/3}}{2}$.

15. Verify that f and g are inverse functions if $f(x) = 6x + 3$ and $g(x) = \dfrac{1}{6}x - \dfrac{1}{2}$.