Name: _____ Period: ____ Row: _____ Assignment #: _____

7.1-7.3 REVIEW WORKSHEET

YOU MUST SHOW WORK ON A SEPARATE SHEET OF PAPER.

Review of Section 7.1 (#1-9, 19-27)

Evaluate the expression without using a calculator.

1. $(81)^{3/4}$
2. $(243)^{6/5}$
3. $\left(\sqrt[3]{-27}\right)^2$
4. $(16)^{-1/4}$
5. $(25)^{-3/2}$
6. $(100)^{-5/2}$
7. $(256)^{-3/4}$
8. $\left(\sqrt[3]{-64}\right)^4$
9. $(-32)^{-3/5}$

Solve the equation. Round your answer to two decimal places when appropriate.

19. $x^5 = 137$
20. $3x^4 + 2 = 5$
21. $(x + 3)^5 = 32$
22. $(2x - 7)^6 = 120$
23. $-2x^3 = 50$
24. $-(x - 1)^7 = 125$
25. $(2x + 1)^4 - 10 = 20$
26. $3 - x^2 = 1$
27. $12 - (3x + 2)^3 = 20$

Review of Section 7.2 (#1-30)

Simplify the expression using the properties of radicals and rational exponents.

1. $5^{2/3} \cdot 5^{4/3}$
2. $\dfrac{3^{1/2}}{3}$
3. $(7^{2/3})^{5/2}$
4. $3^{1/4} \cdot 4^{1/4}$
5. $\sqrt[3]{2} \cdot \sqrt[3]{4}$
6. $\dfrac{\sqrt[4]{240}}{\sqrt[4]{15}}$
7. $\dfrac{\sqrt[3]{3}}{3}$
8. $\left(\dfrac{64}{125}\right)^{1/3}$
9. $(10^{1/2})^{2/3}$

Simplify the expression. Assume all variables are positive.

10. $\sqrt{9x^2}$
11. $\sqrt[3]{2x^3}$
12. $x^{2/3} \cdot x^{1/3}$
13. $\left(\dfrac{x}{4}\right)^{1/2}$
14. $(16x)^{1/4}$
15. $\sqrt[5]{27x} \cdot \sqrt[5]{9x^4}$
16. $\dfrac{\sqrt{12x^2}}{\sqrt{3}}$
17. $\dfrac{1}{(x^2)^{-1/3}}$
18. $\sqrt[4]{256xy^4}$
19. $x^3 \cdot x^{\sqrt{5}}$
20. $\left(x^{\sqrt{3}}\right)^{\sqrt{3}}$
21. $(4x)^{\sqrt{2}}$
22. $\dfrac{x^{\sqrt{3}}}{x^{5\sqrt{3}}}$
23. $x^{-\sqrt{2}}$
24. $3x^{\sqrt{6}} - 2x^{\sqrt{6}}$

Perform the indicated operation.

25. $2\sqrt[3]{3} + \sqrt[3]{3}$
26. $-3\sqrt[4]{15} + 2\sqrt[4]{15}$
27. $3(2^{1/3}) + 5(2^{1/3})$
28. $4\sqrt{2} - \sqrt{8}$
29. $\sqrt[3]{40} + \sqrt[3]{5}$
30. $\sqrt[5]{96} - 4\sqrt[5]{3}$

Review of Section 7.3 (#1-22)

**** State the domain for ALL problems ****

Find $f(x) + g(x)$ and $f(x) - g(x)$. Simplify your answers.

1. $f(x) = 3x^3 - 2x^2 + 5x - 1,\ g(x) = x^2 + 7x - 1$
2. $f(x) = 4x^{2/3},\ g(x) = 3x^{2/3}$
3. $f(x) = 2x^3 - 3x + 4,\ g(x) = x^2 + 5x - 1$
4. $f(x) = \frac{1}{2}x^{3/4},\ g(x) = \frac{1}{8}x^{3/4}$

Find $f(x) \cdot g(x)$. Simplify your answer.

5. $f(x) = -x^2 + 2x + 2,\ g(x) = x + 1$
6. $f(x) = x^4 + 3x + 2,\ g(x) = x^2 + 3$
7. $f(x) = 2x^{1/4},\ g(x) = 2x^{1/3}$
8. $f(x) = 4x^{-1},\ g(x) = 2x^{1/2}$

Find $\frac{f(x)}{g(x)}$. Simplify your answer.

9. $f(x) = 3x^2 - x + 1,\ g(x) = x + 3$
10. $f(x) = 3x + 5,\ g(x) = 2x^2 - 1$
11. $f(x) = 6x^{7/3},\ g(x) = 3x^{2/3}$
12. $f(x) = (3x)^{1/4},\ g(x) = x^{5/4}$

Find $f(g(x))$ and $g(f(x))$. Simplify your answers.

13. $f(x) = 3x,\ g(x) = 2x + 1$
14. $f(x) = x^2 + 1,\ g(x) = x - 2$
15. $f(x) = -x^{1/2},\ g(x) = x + 4$
16. $f(x) = 3x^{4/5},\ g(x) = x^{1/2}$

Let $f(x) = 4x^{1/2}$ and $g(x) = x + 3$. Perform the given operation and state the domain.

17. $f(x) + g(x)$
18. $g(x) - f(x)$
19. $f(x) \cdot g(x)$
20. $\frac{g(x)}{f(x)}$
21. $f(g(x))$
22. $g(f(x))$