FST
Homework 6-2

Name: _____
Block: ___

Non-Calculator

Rewrite using a radical

1. $x^{\frac{1}{7}}$
2. $\left(y^5\right)^{\frac{1}{7}}$
3. $(3w)^{\frac{1}{2}}$
4. $3w^{\frac{1}{2}}$

Rewrite without a radical and simplify

5. $\sqrt[4]{p^2}$
6. $\sqrt{b^3a^2}$
7. $\sqrt[3]{\frac{1}{t^6r}}$
8. $\sqrt[3]{\frac{x^{-4}}{y^{-3}}}$

Simplify completely.

9. $8^{\frac{2}{3}}$
10. $\sqrt[5]{-32}$
11. $\sqrt[4]{81}$
12. 25^0
13. $(-8)^{\frac{5}{3}}$
14. $243^{\frac{6}{5}}$
15. $(81)^{\frac{1}{4}}$
16. $128^{\frac{3}{7}}$
17. $64^{\frac{-1}{2}}$
18. $125^{\frac{-2}{3}}$
19. $27^{\frac{-5}{3}}$
20. $(-16)^{\frac{1}{2}}$

Use the properties of powers to simplify the expression

21. $5^{\frac{2}{3}} \bullet 5^{\frac{4}{3}}$
22. $\frac{3^{\frac{1}{2}}}{3}$
23. $\left(\frac{x}{4}\right)^{\frac{1}{2}}$
24. $\sqrt[5]{27x} \bullet \sqrt[5]{9x^4}$
25. $x^{\frac{2}{3}} \bullet x^{\frac{1}{3}}$
26. $\frac{\sqrt{12x^2}}{\sqrt{3}}$
27. $\sqrt[4]{256xy^4}$
28. $\frac{x^2}{x^8}$

Simplify

29. $\sqrt{98}$ 30. $\sqrt[3]{250}$ 31. $\sqrt[4]{-16}$

Calculator

Use your graphing calculator for the following

32. a. Graph $f : x \to x^{5/2}$ for $0 \le x \le 3$.
    b. State the range of *f*.
    c. Write an equation for the inverse of *f*.
    d. Plot the graph of $y = f^{-1}(x)$ on the same set of axes.

33. a. Plot $f(x) = x^{2/3}$ and $g(x) = x^{3/2}$ on the same set of axes.
    b. How are the graphs related?
    c. Find $f(g(x))$ and $g(f(x))$.

Plot each pair of functions on the same axes

34. a. Sketch graphs of $f(x) = x^2$ and $g(x) = x^{2.2}$ for $x \ge 0$.
    b. Where do the graphs intersect?
    c. For what values of x is $g(x) > f(x)$?
    d. For what values of x is $g(x) < f(x)$?

35. a. Sketch graphs of $f(x) = x^{0.4}$ and $g(x) = x^{-0.4}$ for $x \ge 0$.
    b. True of False. The graphs are reflection images of each other.