Chapter 6 Review #2

Please do all work on a separate sheet of paper.

This is your homework. We have a test next class on chapter 6 (6.1 through 6.4, then 6.6.) Remember to pull your notes together to turn in on the day of the test for a score.

No calculator part.

For problems 1 through 12, simplify completely without using a calculator. Assume all variables are positive.

1. $27^{\frac{2}{3}}$

2. $(-8)^{\frac{4}{3}}$

3. $\left(\frac{9x^4}{25y^{16}}\right)^{\frac{3}{2}}$

4. $27^{-\frac{1}{3}}$

5. $\sqrt[4]{24}\cdot\sqrt[4]{2}$

6. $\sqrt[4]{48x^4y^7z^8}$

7. $\sqrt[3]{-125x^6y^{12}z^{15}}$

8. $\sqrt{50}+\sqrt{18}$

9. $\sqrt[3]{-27}$

10. Simplify: $\frac{12}{\sqrt[4]{36}}$

11. Rewrite in radical form: $(2x)^{\frac{2}{3}}$

12. Given $f(x)=3x^2-1$ and $g(x)=x-7$ find $f(g(5))$

Calculator OK part.

Evaluate using a calculator:

13. $342^{\frac{3}{4}}$

14. $\sqrt[3]{-444}$

Given $f(x)=5x \;\; and \;\; g(x)=x+4$ find h(x). Simplify. Then **<u>state the domain of h(x).</u>**

15. $h(x)=f(x)+g(x)$

16. $h(x)=f(x)\cdot g(x)$

17. $h(x)=\frac{f(x)}{g(x)}$

18. $h(x)=f\left(g(x)\right)$

Find the inverse of each function:

19. $f(x)=-\frac{4}{3}x-7$

20. $f(x)=x^7-12$

Solve the equation. Leave your answer in exact form. Check for extraneous solutions.

21. $\sqrt{2x-3}+5=1$

22. $\frac{1}{2}(5x+7)^{\frac{2}{3}}=\frac{9}{2}$

23. $2(5x-1)^{\frac{1}{2}}+6 = 20$

24. $\sqrt{3x+6} = \sqrt{x+16}$

25. $\sqrt[3]{4x-3} = 3$

26. $\sqrt{x+3}=1+\sqrt{x+1}$