Name _____

Alg 2 Trig Practice WS 6.6-6.7

Work the following problems on a separate paper:

6.6 Rational Exponents

Write each expression in radical or exponential form:

1. $3^{\frac{1}{6}}$
2. $8^{\frac{1}{2}}$
3. $\sqrt{51}$
4. $\sqrt[4]{15^3}$
5. $12^{\frac{2}{3}}$
6. $\sqrt[3]{37}$
7. $\left(c^3\right)^{\frac{3}{5}}$
8. $\sqrt{(-3c)^4}$

Evaluate each expression. Do not use a calculator.

9. $32^{\frac{1}{5}}$
10. $81^{\frac{1}{4}}$
11. $4^{\frac{1}{2}}$
12. $16^{\frac{3}{2}}$
13. $27^{\frac{1}{3}} \cdot 27^{\frac{5}{3}}$
14. $\left(\frac{4}{9}\right)^{\frac{3}{2}}$

Simplify each expression:

15. $m^{\frac{2}{9}} \cdot m^{\frac{16}{9}}$
16. $p^{\frac{1}{5}} \cdot m^{\frac{1}{2}}$
17. $\frac{x^{\frac{2}{3}}}{x^{\frac{1}{4}}}$
18. $\frac{n^{\frac{1}{3}}}{n^{\frac{1}{6}} \cdot n^{\frac{1}{2}}}$
19. $\frac{2n^{\frac{1}{2}}}{n^{\frac{1}{2}} - 1}$
20. $\sqrt[12]{64}$
21. $\sqrt{12} \cdot \sqrt[5]{12^3}$
22. $\frac{a}{\sqrt{3b}}$

6.7 Simplify

23. $4 - \sqrt{x} = 3$
24. $4\sqrt{3h} - 2 = 0$
25. $18 + 7y^{\frac{1}{2}} = 12$
26. $\sqrt[5]{w-7} = 1$
27. $\sqrt[4]{y-9} + 4 = 0$
28. $\sqrt{1-4t} - 8 = -6$
29. $\sqrt[3]{4m+1} - 2 = 22$
30. $\sqrt{4x-6} = \sqrt{x}$
31. $\sqrt{2x+5} = \sqrt{2x+1}$
32. $\sqrt{x+5} + 4 \le 13$
33. $\sqrt{2a-3} < 5$