Algebra 2H HW #_____ HW#_____ Exponents Practice
Supplement to Chapter 4

Copy down each problem and evaluate without a calculator, showing all steps.

1. $(-9)^{-3}$
2. $\left(\frac{1}{5}\right)^{-3}$
3. $\left(\frac{2}{3}\right)^{-4}$
4. $\left(2^{-1}\cdot 3^{0}\cdot 5^{-1}\right)^{-1}$
5. $(-216)^{2/3}$
6. $(100)^{5/2}$
7. $\left(\frac{49}{81}\right)^{-1/2}$
8. $(-8)^{-2/3}$
9. $13^{1/2}\cdot 13^{3/2}$
10. $\frac{5^{9/4}}{5^{1/4}}$
11. $36^{3/8}\cdot 36^{1/8}$
12. $\frac{64^{2/3}}{64^{1/6}}$
13. $\left(25^{1/2}\right)^{3}$
14. $\left(\left(16^{1/2}\right)^{-2/3}\right)^{3/4}$

Copy down each problem and find the missing exponent (x) without a calculator, showing all steps.

15. $\sqrt{.001}=10^{x}$
16. $2\sqrt[3]{4}=2^{x}$
17. $\sqrt{5^{-1}}\cdot\sqrt[3]{25}=5^{x}$
18. $9^{3n+1}\cdot 3^{2n}=3^{x}$

Algebra 2H HW #_____ HW#_____ Exponents Practice
Supplement to Chapter 4

Copy down each problem and evaluate without a calculator, showing all steps.

1. $(-9)^{-3}$
2. $\left(\frac{1}{5}\right)^{-3}$
3. $\left(\frac{2}{3}\right)^{-4}$
4. $\left(2^{-1}\cdot 3^{0}\cdot 5^{-1}\right)^{-1}$
5. $(-216)^{2/3}$
6. $(100)^{5/2}$
7. $\left(\frac{49}{81}\right)^{-1/2}$
8. $(-8)^{-2/3}$
9. $13^{1/2}\cdot 13^{3/2}$
10. $\frac{5^{9/4}}{5^{1/4}}$
11. $36^{3/8}\cdot 36^{1/8}$
12. $\frac{64^{2/3}}{64^{1/6}}$
13. $\left(25^{1/2}\right)^{3}$
14. $\left(\left(16^{1/2}\right)^{-2/3}\right)^{3/4}$

Copy down each problem and find the missing exponent (x) without a calculator, showing all steps.

15. $\sqrt{.001}=10^{x}$
16. $2\sqrt[3]{4}=2^{x}$
17. $\sqrt{5^{-1}}\cdot\sqrt[3]{25}=5^{x}$
18. $9^{3n+1}\cdot 3^{2n}=3^{x}$

Copy down each problem and simplify without a calculator, showing all steps.

19. $\left(2xy^3\right)^2\left(x^2y^4\right)$

20. $\dfrac{\left(5x^2y^4\right)^2}{\left(-xy^5\right)^3}$

21. $\dfrac{x^2}{8y^3}\cdot\left(\dfrac{2y}{x^2}\right)^4$

22. $\dfrac{3x^{-2}y^{-3}}{9x^5y^{-4}}$

23. $\dfrac{\left(xy^{-2}\right)^{-1}}{\left(x^2y\right)^{-2}}$

24. $\left(\dfrac{5x^{-1}}{y^{-2}}\right)^{-2}\cdot\left(\dfrac{x}{2}\right)^{-3}$

Copy down each problem and simplify, showing all steps, if m > 1 and n > 1.

25. $x^{m+n}\cdot x^m\cdot x^{m-n}$

26. $\left(x^{m-n}\right)^m\cdot\left(x^{m+n}\right)^n$

27. $x^2\cdot\left(x^{n-1}\right)^2$

28. $\dfrac{x^{3n}}{x^n x^3}$

29. $\dfrac{x^n y^{n+1}}{x^{n-1}y^n}$

30. $\dfrac{x^{n-1}y^{2n}}{x^{n+1}\left(y^2\right)^{n-1}}$

Copy down each problem and simplify without a calculator, showing all steps.

19. $\left(2xy^3\right)^2\left(x^2y^4\right)$

20. $\dfrac{\left(5x^2y^4\right)^2}{\left(-xy^5\right)^3}$

21. $\dfrac{x^2}{8y^3}\cdot\left(\dfrac{2y}{x^2}\right)^4$

22. $\dfrac{3x^{-2}y^{-3}}{9x^5y^{-4}}$

23. $\dfrac{\left(xy^{-2}\right)^{-1}}{\left(x^2y\right)^{-2}}$

24. $\left(\dfrac{5x^{-1}}{y^{-2}}\right)^{-2}\cdot\left(\dfrac{x}{2}\right)^{-3}$

Copy down each problem and simplify, showing all steps, if m > 1 and n > 1.

25. $x^{m+n}\cdot x^m\cdot x^{m-n}$

26. $\left(x^{m-n}\right)^m\cdot\left(x^{m+n}\right)^n$

27. $x^2\cdot\left(x^{n-1}\right)^2$

28. $\dfrac{x^{3n}}{x^n x^3}$

29. $\dfrac{x^n y^{n+1}}{x^{n-1}y^n}$

30. $\dfrac{x^{n-1}y^{2n}}{x^{n+1}\left(y^2\right)^{n-1}}$