Dividing Monomials WS 463

SIMPLIFYING EXPONENTS

Simplify. Assume that no denominator is equal to zero.

1. $\frac{6^5}{6^4}$ **2.** $\frac{9^{12}}{9^8}$ **3.** $\frac{x^4}{x^2}$ **4.** $\frac{r^3\,s^2}{r^3\,s^4}$

5. $\frac{m}{m^3}$ **6.** $\frac{9d^7}{3d^6}$ **7.** $\frac{12n^5}{36n}$ **8.** $\frac{w^4u^3}{w^4u}$

9. $\frac{a^3b^5}{ab^2}$ **10.** $\frac{m^7n^2}{m^3n^2}$ **11.** $\frac{-21w^5u^2}{7w^4u^5}$ **12.** $\frac{32x^8y^2z^5}{-8xyz^2}$

13. $\left(\frac{4p^7}{7s^2}\right)^2$ **14.** 4^{-4} **15.** 8^{-2} **16.** $\left(\frac{5}{3}\right)^{-2}$

17. $\left(\frac{9}{11}\right)^{-1}$ **18.** $k^{-1}(l^{-6})(m^3)$ **19.** $k^0(k^4)(k^{-6})$ **20.** $\frac{h^3}{h^{-6}}$

21. $\frac{f^{-7}}{f^4}$ **22.** $\left(\frac{16p^5q^2}{2p^3q^3}\right)^0$ **23.** $\frac{f^{-5}g^4}{h^{-2}}$ **24.** $\frac{15x^6y^{-9}}{5xy^{-11}}$

25. $\frac{-15w^0u^{-1}}{5u^3}$

26. $\frac{48x^6y^7z^5}{-6xy^5z^6}$

WS 464

1. $\frac{8^8}{8^4}$ **2.** $\frac{a^4b^6}{ab^3}$ **3.** $\frac{xy^2}{xy}$ **4.** $\frac{m^5np}{m^4p}$

5. $\frac{5c^2d^3}{-4c^2d}$ **6.** $\frac{8y^7z^6}{4y^6z^5}$ **7.** $\left(\frac{4f^3g}{3h^6}\right)^3$ **8.** $\left(\frac{6w^5}{7p^6s^3}\right)^2$

9. $\frac{-4c^2}{24c^5}$ **10.** $x^3(y^{-5})(x^{-8})$ **11.** $p(q^{-2})(r^{-3})$ **12.** 12^{-2}

13. $\left(\frac{3}{7}\right)^{-2}$ **14.** $\left(\frac{4}{3}\right)^{-4}$ **15.** $\frac{22r^3s^2}{11r^2s^{-3}}$ **16.** $\frac{-15w^0u^{-1}}{5u^3}$

17. $\frac{8c^3d^2f^4}{4c^{-1}d^2f^{-3}}$ **18.** $\frac{-12t^{-1}u^5v^{-4}}{2t^{-3}uv^5}$ **19.** $\frac{6f^{-2}g^3h^5}{54f^{-2}g^{-5}h^3}$ **20.** $\left(\frac{x^{-3}y^5}{4^{-3}}\right)^0$

21. $\frac{r^4}{(3r)^3}$

22. $\frac{m^{-2}n^{-5}}{(m^4n^3)^{-1}}$

23. $\frac{(j^{-1}k^3)^{-4}}{j^3k^3}$

24. $\frac{(a^{-2}b)^{-3}}{5a^2b^4}$

25. $\left(\frac{q^{-1}r^{3}}{qr^{-2}}\right)^{-5}$

26. $\left(\frac{7c^{-3}d^{3}}{c^{5}de^{-4}}\right)^{-1}$

27. $\left(\frac{2x^{3}y^{2}z}{3x^{4}yz^{-2}}\right)^{-2}$

28. BIOLOGY A lab technician draws a sample of blood. A cubic millimeter of the blood contains 22^3 white blood cells and 22^5 red blood cells. What is the ratio of white blood cells to red blood cells?

29. COUNTING The number of three-letter "words" that can be formed with the English alphabet is 26^3. The number of five-letter "words" that can be formed is 26^5. How many times more five-letter "words" can be formed than three=letter "words"?