

5-1 Simplify, Multiply, and Divide Rational Expressions Worksheet

Directions – Simplify each expression. Show your work!

1. $\frac{30bc}{12b^2}$	2. $\frac{-3mn^4}{21m^2n^2}$	3. $\frac{(-3x^2y)^3}{9x^2y^2}$	4. $\frac{(-2rs^2)^2}{12r^2s^3}$
5. $\frac{5t-5}{t^2-1}$	6. $\frac{c+5}{2c+10}$	7. $\frac{y^2+4y+4}{3y^2+5y-2}$	8. $\frac{a^2+2a+1}{2a^2+3a+1}$
9. $\frac{3xyz}{4xz} \cdot \frac{6x^2}{3y^2}$	10. $\frac{-4ab}{21c} \cdot \frac{14c^2}{18a^2}$	11. $\frac{3}{5d} \div \frac{-9}{15df}$	12. $\frac{p^3}{2q} \div \frac{-p}{4q}$
13. $\frac{2x^3y}{z^5} \div \left(\frac{4xy}{z^3}\right)^2$	14. $\frac{xy}{a^3} \div \left(\frac{xy}{ab}\right)^3$	15. $\frac{3t^2}{t+2} \cdot \frac{t+2}{t^2}$	16. $\frac{4w+4}{3} \cdot \frac{1}{w+1}$
17. $\frac{4t^2-4}{9(t+1)^2} \cdot \frac{3t+3}{2t-2}$	18. $\frac{3p-21}{p^2-49} \cdot \frac{p^2+7p}{3p}$	19. $\frac{5x^2+10x-75}{4x^2-24x-28} \cdot \frac{2x^2-10x-28}{x^2+7x+10}$	20. $\frac{w^2-11w+24}{w^2-18w+80} \cdot \frac{w^2-15w+50}{w^2-9w+20}$
21. $\frac{r^2+2r-8}{r^2+4r+3} \div \frac{r-2}{3r+3}$	22. $\frac{a^2+2a-15}{a-3} \div \frac{a^2-4}{2}$	23. $\frac{\frac{m^3}{3n}}{\frac{m^4}{9n^2}}$	24. $\frac{\frac{p^3}{2q}}{\frac{-p^2}{4q}}$
25. $\frac{\frac{m+n}{5}}{\frac{m^2+n^2}{5}}$	26. $\frac{\frac{x+y}{2x-y}}{\frac{x+y}{2x+y}}$	27. $\frac{\frac{6y^2-6}{8y^2+8y}}{\frac{3y-3}{4y^2+4y}}$	28. $\frac{\frac{5x^2-5x-30}{45-15x}}{\frac{6+x-x^2}{4x-12}}$