

Simplify the following Rational Expressions – Multiplication and Division

$$1. \frac{-8x^2}{y^3} \cdot \frac{15y}{4x}$$

$$2. \frac{2rs}{3} \cdot \frac{-3}{4s}$$

$$3. \frac{24m^6n}{18m^3} \cdot \left(\frac{9n^4}{2m}\right)^{-1}$$

$$4. (2a^2)(3b)^{-1}(15b^3)(2a)^{-2}$$

$$5. (9xy^3)(3ay)^{-1}(8a^4x)(2y)^{-2}$$

$$6. \frac{x^2+3x}{x^2+2x-3} \cdot \frac{x+1}{x}$$

$$7. \frac{x^2-9}{4x+12} \cdot \frac{6}{x-3}$$

$$8. \frac{y^2+6y-16}{y^2-64} \cdot (y-2)^{-1}$$

$$9. \frac{2y^2-50}{2y-10} \cdot (4y-2) \cdot (6y+30)^{-1}$$

$$10. \frac{2z-14}{z^2-2z-35} \div \frac{6z^3}{z^2-25}$$

$$11. \frac{a^2-4a}{a^2+2a} \left(\frac{a^2-9a+20}{a^2-3a-10}\right)^{-1}$$

$$12. \frac{2z-8}{z^2-4} \div \frac{z-4}{z^2+6z+8}$$

$$13. \frac{1+3b-18b^2}{6b^2-17b-3} \left(\frac{3b-1}{b-3}\right)^{-1}$$

$$14. \frac{3a+6c}{9a} \cdot \frac{12ac}{a^2-4c^2} \div \frac{18a^3c^3}{2a-4c}$$

$$15. \frac{5c^2-5c}{4a^3} \cdot \frac{c^2-9c-10}{4c-40} \div \frac{2-2c^2}{a}$$

$$16. \frac{12a^2-3}{15} \cdot (2a+1)^{-1} \cdot \frac{5}{2a+1}$$

$$17. \frac{15-13x+2x^2}{4x^2-9} \cdot \frac{2x+1}{1-2x} \cdot \left(\frac{5-x}{2x-1}\right)^{-1}$$

$$18. \frac{30-11p+p^2}{9p-6p^2+p^3} \cdot \frac{p^2-3p}{25-p^2} \cdot \left(\frac{p^2-9}{p^2+2p-15}\right)^{-1}$$