

DIRECTIONS: Simplify. Write answers *without* negative or zero exponents.

1. $\frac{-10}{21} \div \frac{15}{28}$

2. $-\frac{26}{25} \div \frac{39}{20}$

3. $\frac{5x^3}{-3} \div \frac{-6}{10x^2}$

4. $\frac{22z^2}{15} \cdot \frac{-5}{11z^3}$

5. $\frac{8t^2}{3} \div \frac{2t}{9}$

6. $\frac{28x}{25} \div \frac{21x^3}{15}$

7. $\frac{x^2}{4} \cdot \left(\frac{xy}{6}\right)^{-1} \cdot \frac{2y^2}{x}$

8. $2uv \div \frac{2u^2}{v} \div \frac{2v^2}{u}$

9. $\frac{4rs^2}{45} \div \frac{8s}{27r} \div \frac{9rs}{10}$

10. $\frac{7x^2}{9y} \div \frac{4x}{15y^2} \cdot \left(\frac{35}{6xy}\right)^{-1}$

11. $\frac{x(x-1)}{(x-2)^2} \div \frac{(x-1)^2}{x-2}$

12. $\frac{t-2}{t+3} \cdot \frac{t^2+2t-3}{t^2-t-2}$

13. $\frac{4u^2-1}{u^2-4} \cdot \frac{u-2}{2u-1}$

14. $\frac{x^2}{x-1} \cdot \frac{x+1}{x+2} \div \frac{x}{(x-1)(x+2)}$

15. $\frac{x^2-4}{2x^2-5x+2} \div \frac{2x^2-3x-2}{4x^2-1}$

16. $\frac{3x^2-8x+4}{9x^2-4} \div \frac{3x^2-5x-2}{9x^2-3x-2}$

$$17. \frac{u^2v}{u+v} \div (u+v) \cdot \frac{u^2+2uv+v^2}{uv^2-u^2v}$$

$$18. \frac{x^2+3ax}{3a-x} \cdot \frac{x^2-4ax+3a^2}{a^2-x^2} \div \frac{x+3a}{x+a}$$

$$19. \frac{3x^2+xy-2y^2}{3x^2-xy-2y^2} \div \frac{3x^2+7xy-6y^2}{3x^2-2xy-y^2} \div \frac{3x+y}{3x+2y}$$

$$20. \frac{r^2+4rs+3s^2}{r^2+5rs+6s^2} \cdot (r+2s)^{-1} \div \frac{r+s}{r^2+4rs+4s^2}$$

$$21. (a^4 + 2a^2b^2 + b^4) \div (a^4 - b^4) \cdot (a - b)$$

$$22. (u^4 + u^2v^2 + v^4) \div (u^6 - v^6) \cdot (u^2 - v^2)$$