

5.6 - Sums and Differences

simplify.

$$11. \frac{2x \cdot 3}{5 \cdot 3} - \frac{x \cdot 5}{3 \cdot 5} \quad \left(\frac{x}{15} \right)$$

LCD: 15

$$\frac{6x - 5x}{15}$$

$$12. \frac{\frac{b}{2a} \cdot \frac{a \cdot 2a}{b \cdot 2a}}{\frac{b^2 - 2a^2}{2ab}}$$

$$13. \frac{(4+3y)^2}{3y \cdot 2} - \frac{(1+2y)^3}{2y \cdot 3} \quad \left(\frac{5}{6y} \right)$$

LCD: 6y

$$\frac{8 + 6y - (3 + 6y)}{6y}$$

$$14. \frac{\frac{3 \cdot x}{2x \cdot x} + \frac{(5-x)^2}{x^2 \cdot 2}}{\frac{x+10}{2x^2}}$$

$$\frac{3x + 10 - 2x}{2x^2}$$

$$15. \frac{(b-a)^b}{a^2 b \cdot b} + \frac{(a+b)^a}{ab^2 \cdot a} \quad \left(\frac{a^2 + b^2}{a^2 b^2} \right)$$

$$\frac{b^2 - ab + a^2 + ab}{a^2 b^2}$$

LCD: $a^2 b^2$

$$16. \frac{(r-s)^{rs}}{rs \cdot rs} - \frac{r^2 s + 1}{r^2 s^2}$$

$$\frac{r^2 s - r s^2 - r^2 s - 1}{r^2 s^2} = \frac{-rs^2 - 1}{r^2 s^2}$$

$$17. \frac{(2-m)^{5m}}{3m \cdot 5m} + \frac{(m^2-2)^3}{5m^2 \cdot 3} \quad \left(\frac{-2m^2 + 10m - 6}{15m^2} \right)$$

LCD: $15m^2$

$$\frac{10m - 5m^2 + 3m^2 - 6}{15m^2} = \frac{-2m^2 + 10m - 6}{15m^2}$$

$$18. \frac{u+2}{u-1} - \frac{v+2}{v+1} \quad \left(\frac{uv + u + 2v + 2 - (uv - v + 2u - 2)}{(u-1)(v+1)} \right)$$

$$\frac{-u + 3v + 4}{(u-1)(v+1)}$$

$$19. \frac{(2-a^2)^3}{a^2 + a} + \frac{(3a+4)^a}{3a+3} \quad \left(\frac{4a+b}{3a(a+1)} \right)$$

LCD: $3a(a+1)$

$$\frac{6 - 3a^2 + 3a^2 + 4a}{3a(a+1)} = \frac{4a+b}{3a(a+1)}$$

$$20. \frac{\frac{3(3)}{c^2-4}}{(c+2)(c-2)} - \frac{\frac{2(c+2)}{3c-6}}{3(c-2)}$$

$$\frac{9 - (2c+4)}{3(c+2)(c-2)} = \frac{-2c+5}{3(c+2)(c-2)}$$

$$21. \frac{\frac{5(u+2)}{2u^2-u} + \frac{10(2u-1)}{2u+u^2}}{u(2u-1)(u+2)u(2u-1)} \quad \left(\frac{25}{(2u-1)(u+2)} \right)$$

$$\frac{5u+10+20u-10}{u(2u-1)(u+2)} = \frac{25}{(2u-1)(u+2)}$$

$$22. \frac{\frac{2}{3z^2+2z}}{z(3z+2)} - \frac{\frac{6 \cdot 2}{9z^2+12z+4}}{(3z+2)(3z+2)}$$

$$\frac{6z+4-6z}{z(3z+2)^2}$$