

## C8L5 Notes

### Adding and Subtracting Rational Expressions

Perform the indicated operation. Simplify if possible.

1.  $\frac{5}{3} - \frac{pq}{3}$

$$\frac{5-pq}{3}$$

2.  $\frac{uv}{2} - \frac{uv^4}{3}$

$$\frac{3uv}{6} - \frac{2uv^4}{6}$$
$$\frac{3uv-2uv^4}{6}$$

3.  $\frac{u}{1} + \frac{2}{1} - \frac{t}{3}$

$$\frac{3u}{3} + \frac{2(3)}{3} - \frac{1}{3}$$

$$\frac{3u}{3} + \frac{6}{3} - \frac{1}{3}$$

$$\frac{3u+6-1}{3}$$

$$\frac{3u+5}{3}$$

4.  $\frac{3}{1} - \frac{p}{7p-5}$

$$\frac{3(7p-5)}{7p-5} - \frac{p}{7p-5}$$

$$\frac{21p-15}{7p-5} - \frac{p}{7p-5}$$

$$\frac{21p-15-p}{7p-5}$$

$$\frac{20p-15}{7p-5}$$

$$5. \frac{3}{7qr^2} - (q-5)$$

$$\frac{3}{7qr^2} - \frac{7qr^2(q-5)}{7qr^2}$$

$$\frac{3}{7qr^2} - \frac{7q^2r^2 - 35qr^2}{7qr^2}$$

$$\frac{3 - 7q^2r^2 + 35qr^2}{7qr^2}$$

$$6. \frac{5}{7v-1} - (9v+9)$$

$$\frac{5}{7v-1} - \frac{(9v+9)(7v-1)}{7v-1}$$

$$\frac{5}{7v-1} - \frac{63v^2 + 54v - 9}{7v-1}$$

$$\frac{5 - 63v^2 - 54v + 9}{7v-1}$$

$$\frac{-63v^2 - 54v + 14}{7v-1}$$

$$7. \frac{7t}{12t-24} - \frac{6t}{4t-8}$$

$$\frac{7t}{12(t-2)} - \frac{6t}{4(t-2)}$$

$$\frac{7t}{12(t-2)} - \frac{6t(3)}{12(t-2)}$$

$$\frac{7t - 18t}{12(t-2)}$$

$$\frac{-11t}{12(t-2)}$$

$$8. \frac{8q}{8q+16} + \frac{q}{2q+4}$$

$$\frac{8q}{8(q+2)} + \frac{q}{2(q+2)}$$

$$\frac{8q}{8(q+2)} + \frac{q(4)}{8(q+2)}$$

$$\frac{8q + 4q}{8(q+2)}$$

$$\frac{12q}{8(q+2)}$$

$$\frac{3q}{2(q+2)}$$

$$9. \frac{5}{6x} + \frac{7}{6xy}$$

$$\frac{5y}{6xy} + \frac{7}{6xy}$$

$$\frac{5y+7}{6xy}$$

$$10. \frac{9}{5x-15} - \frac{7}{x-3}$$

$$\frac{9}{5(x-3)} - \frac{7(5)}{5(x-3)}$$

$$\frac{9-35}{5(x-3)}$$

$$\frac{-26}{5(x-3)}$$

$$11. \frac{4x}{x^2-25} + \frac{7}{x-5}$$

$$\frac{4x}{(x+5)(x-5)} + \frac{7(x+5)}{(x-5)(x+5)}$$

$$\frac{4x+7x+35}{(x+5)(x-5)}$$

$$\frac{11x+35}{(x+5)(x-5)}$$

$$12. \frac{6x}{x^2-3x-28} + \frac{5}{x^2-14x+49}$$

$$\frac{6x}{(x-7)(x+4)} + \frac{5}{(x-7)(x-7)}$$

$$\frac{6x(x-7)}{(x-7)(x+4)(x-7)} + \frac{5(x+4)}{(x-7)(x+4)(x-7)}$$

$$\frac{6x^2-42x}{(x-7)(x+4)(x-7)} + \frac{5x+20}{(x-7)(x+4)(x-7)}$$

$$\frac{6x^2-42x+5x+20}{(x-7)(x+4)(x-7)}$$

$$\frac{6x^2-37x+20}{(x-7)(x+4)(x-7)}$$