Solving Equations Involving Algebraic Fractions Home Learning **Answers**

1. Simplify:

a. $\frac{3x}{4} \times \frac{2x}{9}$

$\frac{\boldsymbol{x^2}}{\boldsymbol{6}}$

b. $\frac{14x}{5x} \times \frac{10x^2}{7}$

$\boldsymbol{4x^2}$

c. $\frac{5x}{8} + \frac{x}{4}$

$\frac{\boldsymbol{7x}}{\boldsymbol{8}}$

d. $\frac{3}{x} + \frac{2}{x^2}$

$\frac{\boldsymbol{3x + 2}}{\boldsymbol{x^2}}$

e. $\frac{1}{4x} - \frac{5}{8x^2}$

$\frac{\boldsymbol{2x - 5}}{\boldsymbol{8x^2}}$

f. $\frac{14}{x} \div \frac{7}{x^2}$

$\boldsymbol{2x}$

g. $\frac{x + 1}{x + 2} \times \frac{x - 1}{x - 2}$

$\frac{\boldsymbol{x^2 - 1}}{\boldsymbol{x^2 - 4}}$

h. $\frac{2}{x + 4} \div \frac{1}{x^2 - 16}$

$2(x - 4)$ or $2x - 8$

2. Simplify:

a. $\frac{1}{x + 5} + \frac{1}{x + 3}$

$\frac{\boldsymbol{2x + 8}}{\boldsymbol{(x + 5)(x + 3)}}$

b. $\frac{3}{x + 2} - \frac{1}{x - 8}$

$\frac{\boldsymbol{2x - 26}}{\boldsymbol{(x + 2)(x - 8)}}$

c. $\frac{4x}{x + 7} + \frac{x - 2}{x - 1}$

$\frac{\boldsymbol{5x^2 + x - 14}}{\boldsymbol{(x + 7)(x - 1)}}$

d. $\frac{x + 4}{3x - 1} + \frac{x + 8}{2x + 9}$

$\frac{\boldsymbol{5x^2 + 40x + 28}}{\boldsymbol{(3x - 1)(2x + 9)}}$

3. Solve:

a. $\frac{x}{4} = 9$

$\boldsymbol{x = 36}$

b. $\frac{x}{3} + \frac{2x}{4} = 10$

$\boldsymbol{x = 12}$

c. $\frac{x}{3} - \frac{x - 1}{5} = 1$

$\boldsymbol{x = 6}$

d. $\frac{2x}{3} = 11$

$\boldsymbol{x = 16.5}$

e. $\frac{x + 4}{x} - \frac{x - 3}{2} = -1$

$x = -1$ or $x = 8$

f. $\frac{x}{x + 5} + \frac{12}{x - 2} = -6$

$x = -4$ or $x = 0$

Challenge

Can you create an equation, using algebraic fractions, which has a solution of $x = 5$?

Any equation involving fractions, where the solution is $x = 5$.