

Worksheet 2

Simplifying fractions: Addition and subtraction

1. Simplify each expression.

1.1 $\frac{1}{2} + \frac{1}{3}$

1.3 $\frac{5}{4x} + \frac{3}{x} - \frac{2}{5}$

1.5 $\frac{4}{a} - \frac{5}{a^2} + \frac{6a}{a^3}$

1.7 $\frac{1}{a^2 + 2a + 1} + \frac{1}{1 - a^2} + \frac{1}{a + 1}$

1.9 $\frac{2}{x + 1} + \frac{2x - 2}{x^2 + 2x + 1}$

1.11 $\frac{2}{x - 1} + \frac{3}{1 - x} + \frac{4}{x^2 - 1}$

1.13 $\frac{3}{ab} - \frac{2}{b^2} + \frac{1}{a^2}$

1.15 $\frac{x - 3}{x^2 - 3x - 4} - \frac{x - 1}{x^2 - x - 2}$

1.17 $\frac{x - 11}{x^2 - 7x + 10} + \frac{9 - x}{2x - 10} - \left[\frac{(5x + 3)(5 - x)}{5x^2 - 7x - 6} \right]$

1.2 $\frac{5a}{4} - \frac{2a - 1}{3}$

1.4 $\frac{2(x - 2)}{3} + \frac{x - 1}{2}$

1.6 $\frac{x + 5}{x - 5} + \frac{x - 5}{x + 5}$

1.8 $\frac{1}{4} - \frac{x - 5}{3x}$

1.10 $\frac{6x}{(x + 2)(x - 2)} - \frac{2}{x + 2} + \frac{3}{2 - x}$

1.12 $\frac{x + 2}{2} - \frac{x}{x + 2} + \frac{2x^2 - x^3}{2x^2 - 8}$

1.14 $\frac{x + 1}{x + 3} - \frac{1}{x - 3}$

1.16 $\frac{a}{a^2 - x^2} + \frac{2a}{(x - a)^2}$

Revision: Solving for x in equations

1. Solve for x in each linear equation.

1.1 $2x + 3 = -2x - 9$

1.3 $5x - 5 - (3x + 2) = 2(5 - x) - x + 3$

1.2 $2x - 3 = -4x + 6$

1.4 $3x - 5(2x - 1) = 17 - (3x - 2)$

2. Solve for x in each fraction.

2.1 $\frac{2x}{5} + \frac{1}{2} = \frac{3x}{2} - 1$

2.3 $\frac{3x}{4} + \frac{x + 6}{3} = x + 3$

2.2 $\frac{2x - 1}{3} - \frac{x - 1}{2} = \frac{1}{3}x$

2.4 $x - \frac{2}{3}(x - 2) = \frac{3x + 1}{4} - \frac{x + 1}{6}$

3. Solve for x in the fraction: $\frac{4 - x}{x(x + 2)}$.

For which value(s) of x is the fraction:

3.1 equal to 0

3.2 undefined?

4. Solve for x in each quadratic equation.

4.1 $(x + 2)(x - 5) = 0$

4.3 $3x^2 - 2x = 0$

4.5 $(x + 1)(x + 2) = 20$

4.7 $x^2 - 5x = 0$

4.9 $x^2 + 7x = -6$

4.2 $2x^2 - 5x = 0$

4.4 $x^2 + 2x = 15$

4.6 $(x + 5)(x - 1) = 0$

4.8 $x^2 - 36 = 0$