Part 1: 1-step equations

Model these using the materials. Record your work with both pictures and the corresponding symbolism.

1) $x + 3 = 10$

2) $x - 4 = 9$

3) $x - 7 = -2$

4) $5 = x - 7$

5) $2 + x = -6$

6) $-3 = -3 + x$

7) $2x = 10$

8) $15 = 5x$

9) $-4x = 12$

10) $9 = -2x$

Part 2: 1-step equations with fractional multiples of x

1) $\dfrac{1}{3}x = 4$

2) $\dfrac{1}{4}x = -2$

3) $\dfrac{2}{3}x = 6$

4) $\dfrac{4}{5}x = -8$

5) $-5 = \dfrac{1}{3}x$

6) $-\dfrac{2}{3}x = 4$

7) $\dfrac{3}{4}x = -2$

8) $-3 = -\dfrac{4}{3}x$

Part 3: 2-step equations

1) $2x + 9 = -3$

2) $-3x + 5 = -1$

3) $4 = 3x - 8$

4) $-3 - 2x = 1$

5) $2x + 3 = 10$

6) $\frac{1}{2}x - 4 = 7$

Part 4: Two step equations with multiple fractions

1) $\frac{1}{2}x + \frac{1}{4} = \frac{1}{2}$

2) $\frac{3}{4}x - \frac{1}{3} = \frac{4}{2}$

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

4) $\frac{2}{7} = \frac{3}{5}x - \frac{3}{10}$

5) $\frac{3}{2}x - \frac{2}{3} = -4$

6) $-\frac{5}{4} = \frac{9}{7} - \frac{2}{3}x$

Part 5: x on both sides of the equation

1) $4x - 3 = 2x + 5$

2) $2 + 5x = 8x + 8$

3) $3x + 2 = -6 - x$

4) $9x - 3 = 5x$

5) $21 - 6x = 22 - 8x$

6) $\dfrac{1}{3}x + \dfrac{1}{3} = \dfrac{2}{3}x$

7) $4 - 5x = -6 + 5x$

8) $4x - 7 = 2x + 6$

9) $2x + 2 = 1 + 2x$

10) $\dfrac{2}{5}x = 3x + 2$