

Workout

Question 1: Solve each of the following equations.

(a) $\frac{3}{x+2} + \frac{2}{x} = 1$

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

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

(d) $\frac{1}{x-10} + \frac{2}{x-10} = 1$

(e) $\frac{1}{x} + \frac{2}{x+1} = 2$

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

(g) $\frac{3}{x+2} + \frac{2}{x+4} = 2$

(h) $\frac{2}{2x-1} + \frac{1}{x-2} = 1$

(i) $\frac{6}{x+1} - \frac{1}{x+1} = 3$

(j) $1 - \frac{3}{x+3} = \frac{1}{x-1}$

(k) $\frac{x}{x-3} + \frac{4}{x+2} = 2$

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

Question 2: Solve each of the equations below.
Give each answer to 2 decimal places.

(a) $\frac{1}{x+3} + \frac{1}{x+8} = 1$

(b) $\frac{1}{2x-1} + \frac{2}{x+5} = 1$

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

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

(e) $\frac{x+5}{x-1} + \frac{1-x}{x-2} = 1$

(f) $\frac{8}{x+1} + \frac{2x+5}{x} = 4$

Apply

Question 1: Can you spot any mistakes?

solve $\frac{7}{x} - \frac{2}{x+2} = 3$

$$\frac{7(x+2)}{x(x+2)} - \frac{2x}{x(x+2)} = 3$$

$$\frac{7x+14}{x(x+2)} - \frac{2x}{x(x+2)} = 3$$

$$\frac{5x+14}{x(x+2)} = 3$$

$$\frac{5x+14}{x^2+2x} = 3$$

continued...

$$5x+14 = 3(x^2+2x)$$

$$5x+14 = 3x^2+6x$$

$$0 = 3x^2+x-14$$

$$0 = (3x-7)(x-2)$$

$$x = \frac{3}{7} \text{ or } 2$$