Linear equations with algebraic fractions: 10 practice questions

Year 10 · Free practice sheet from Tuterly · tuterly.com.au

Name: _____ Date: _____

Attempt all questions and show your working. Suggested time: 15 to 20 minutes.

Section A: Consolidating (Questions 1-4)

Question 1

Solve each equation.

(a) $x/4 = 5$

(b) $x/3 + 2 = 7$

Question 2

Solve $(x + 3)/(2) = 6$.

Question 3

Solve $2x/5 = 8$.

Question 4

Solve each equation.

(a) $(x - 1)/(4) = 3$

(b) $12/x = 3$

Section B: Standard (Questions 5-10)

Question 5

Solve each equation.

(a) $(2x + 1)/(3) = 5$

(b) $(3x - 4)/(5) = 4$

(c) $5 - x/2 = 1$

Question 6

Solve each equation.

(a) $x/2 + x/3 = 10$

(b) $\frac{x}{4} - \frac{x}{6} = 2$

Question 7

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

Question 8

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

Question 9

Solve each equation.

(a) $\frac{x + 4}{3} = \frac{2x - 1}{5}$

(b) $\frac{3}{x} = \frac{5}{x + 4}$

Question 10

Here is Kim's working to solve $\frac{x + 3}{2} - \frac{x - 1}{4} = 2$.

Line 1: $2(x + 3) - x - 1 = 8$

Line 2: $x + 5 = 8$

Line 3: $x = 3$

(a) Substitute $x = 3$ into the original equation to show that Kim's answer is wrong.

(b) Explain the mistake in Line 1.

(c) Solve the equation correctly.

Linear equations with algebraic fractions: answers

Year 10 · Free practice sheet from Tuterly · tuterly.com.au

Question 1

Answer: (a) x = 20 (b) x = 15

Question 2

Answer: x = 9

Question 3

Answer: x = 20

Question 4

Answer: (a) x = 13 (b) x = 4

Question 5

Answer: (a) x = 7 (b) x = 8 (c) x = 8

Question 6

Answer: (a) x = 12 (3x + 2x = 60) (b) x = 24 (3x - 2x = 24)

Question 7

Answer: x = 5 (3(x + 1) + 2(x - 2) = 24, so 5x - 1 = 24)

Question 8

Answer: x = 7 (2(x + 5) - 3(x - 1) = 6, so -x + 13 = 6)

Question 9

Answer: (a) x = 23 (5(x + 4) = 3(2x - 1)) (b) x = 6 (3(x + 4) = 5x)

Question 10

Answer: (a) 6/2 - 2/4 = 2.5, not 2 (b) -(x - 1) was expanded as -x - 1; it should be -x + 1 (c) 2x + 6 - x + 1 = 8, so x = 1