Solving Equations and Inequations - Lesson 1

Equations with Brackets - No Fractions

LI

- Solve different types of equations with brackets.

SC

- Expand brackets.
- Simplify.
- Solve 2-step equations.

Nov 15-13:27

- Break brackets.
- Collect like terms.
- Solve the 2 -step equation.

Example 1

$$2(3x - 8) - 3x = 17$$

$$6x - 16 - 3x = 17$$

$$3x - 16 = 17$$

$$3x = 33$$

$$x = 11$$

Example 2

$$5(x + 6) - 2 = 5 + 3(3x + 5)$$

$$5x + 30 - 2 = 5 + 9x + 15$$

$$5x + 28 = 9x + 20$$

$$8 = 4x$$

$$\boxed{x = 2}$$

Feb 12-15:40

Example 3

$$3(4x - 7) - 4(2x - 1) = 9$$

$$12x - 21 - 8x + 4 = 9$$

$$4x - 17 = 9$$

$$4x = 26$$

$$x = \frac{26}{4}$$

$$\boxed{x = \frac{13}{2}}$$

Feb 12-15:40

Questions

1 Solve the following, giving your answer as a fraction or mixed number.

a $3x - 2 = x + 5$ **b** $8x + 9 = 5x - 1$ **c** $2x + 7 = 4x + 10$

d $5x + 2 = 5 - 3x$ **e** $7x - 8 = 8x + 9$ **f** $x + 6 = 7x - 2$

2 Solve the following.

a $3(2x + 1) = 21$ **b** $2(4x - 5) = 22$ **c** $4(3 - x) = 24$

d $27 = 3(2x - 5)$ **e** $4(2x - 5) - 3x = 30$ **f** $8(3x + 2) - 15x = 43$

3 Solve the following.

a $5(3x - 2) - 8 = 6 + 7x$ **b** $2(3 - 5x) + 4 = 7(5 - 2x) - 1$

c $9(4x + 3) = 5(2 - x) + x - 2$ **d** $4(x + 1) - 3(2x - 5) = 11$

e $20 - (1 - x) - 2(2 - 3x) = 1$ **f** $8 - 3(5x + 1) = 2(x - 8) + 4$

g $14 - 5(x + 1) = 3(2 - 3x) + 6x - 5$ **h** $8(3 - 2x) = 7(13 - x)$

4 Solve the following, giving your answer as a fraction or mixed number where required.

a $6(3x - 2) + 5(1 - 2x) = 5$ **b** $3(5 - x) - 2(4 - 3x) = 1$

c $6x + 1 - (x - 7) = 6 - 2(5 - 4x)$ **d** $10 - (2 - x) = 3(2x + 7)$

e $8x - 3 = 1 - 6(2 - 3x)$ **f** $2(7x - 3) - 5(4x - 1) = 2$

g $15 - (8 - x) = 4(2x - 3) + 2$ **h** $9x - 5 - (4 - x) = 14 + 3(2x + 1)$

Nov 9-09:26

Answers

1		2		3		4	
a	$x = 3\frac{1}{2}$	a	$x = 3$	a	$x = 3$	a	$x = 1\frac{1}{2}$
b	$x = -3\frac{1}{3}$	b	$x = 4$	b	$x = 6$	b	$x = -2$
c	$x = -1\frac{1}{2}$	c	$x = -3$	c	$x = -\frac{19}{40}$	c	$x = 4$
d	$x = \frac{3}{8}$	d	$x = 7$	d	$x = 4$	d	$x = -2\frac{3}{5}$
e	$x = -17$	e	$x = 10$	e	$x = -2$	e	$x = \frac{4}{5}$
f	$x = 1\frac{1}{3}$	f	$x = 3$	f	$x = 1$	f	$x = -\frac{1}{2}$
				g	$x = 4$	g	$x = 2\frac{3}{7}$
				h	$x = -7\frac{4}{9}$	h	$x = 6\frac{1}{2}$

Sep 19-09:51