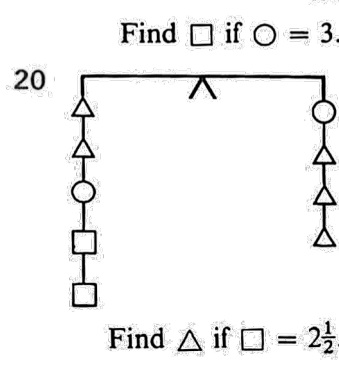
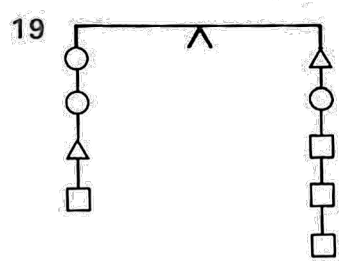
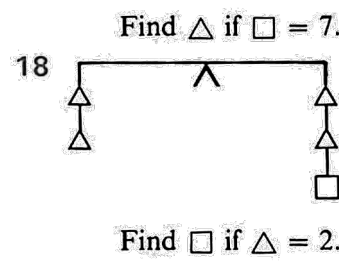
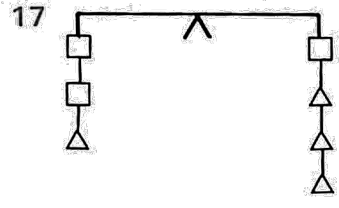
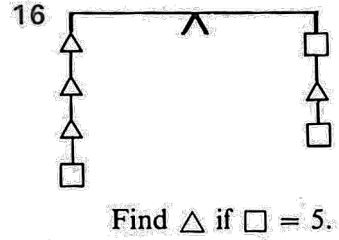
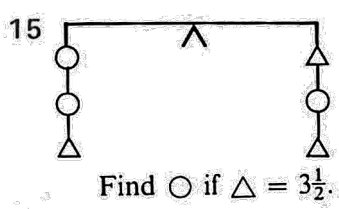
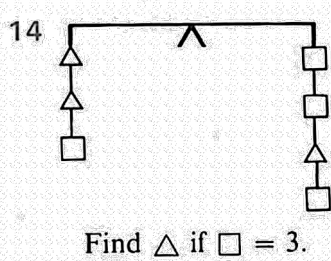
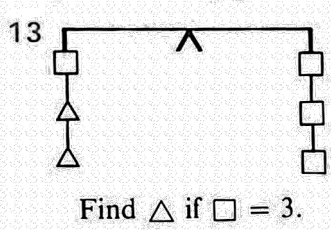
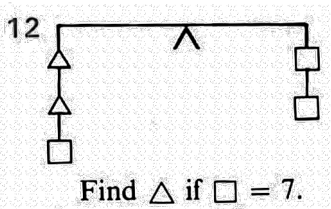
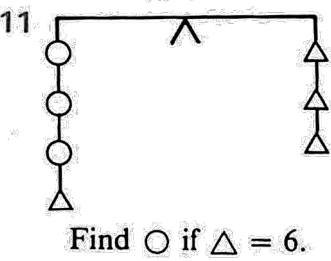
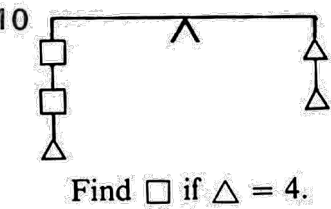
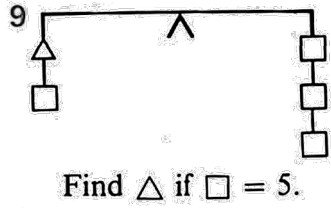
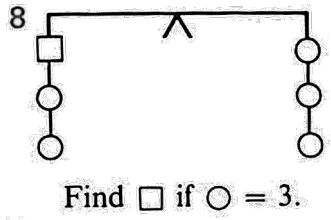
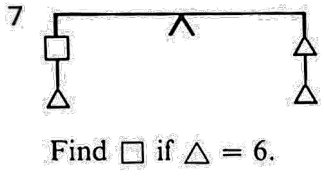
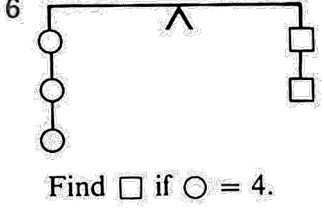
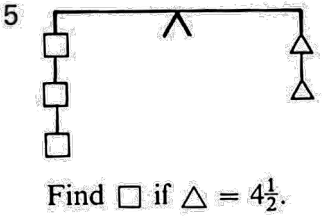
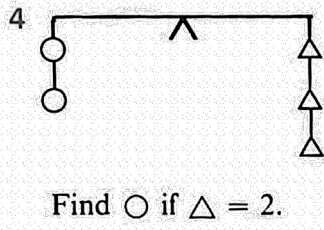
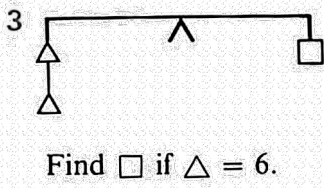
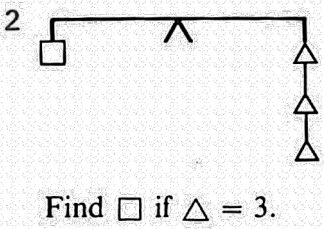
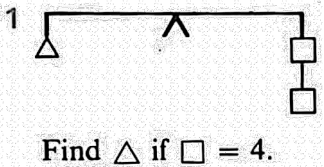
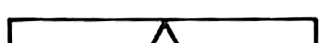



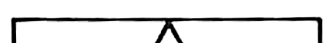
Task 1: Balancing



Create your own balance problems with an answer of $\square = 4$.

Easy: 
Find \square if $\triangle = \underline{\quad}$

Medium: 
Find \square if $\triangle = \underline{\quad}$

Hard: 
Find \square if $\triangle = \underline{\quad}$

Task 2: Find the value of Δ in each balance.

- 1 $\Delta + 2$ 5
- 2 $\Delta + 3$ 8
- 3 $\Delta + 8$ 10
- 4 7 $\Delta + 6$
- 5 $\Delta + 3$ 7
- 6 5 $\Delta + 3$
- 7 18 $\Delta + 8$
- 8 Δ $\Delta + 4$
- 9 Δ $\Delta + 3$
- 10 $\Delta + 2$ $\Delta + 5$
- 11 $\Delta + 3$ $\Delta + 8$

- 12 $\Delta + 1$ $\Delta + 4$
- 13 $\Delta + 10$ $\Delta + 6$
- 14 $\Delta + 7$ $\Delta + 3$
- 15 Δ $\Delta + 8$
- 16 $\Delta + 4$ $\Delta + 10$
- 17 $\Delta + 12$ $\Delta + 8$
- 18 $\Delta + 6$ $\Delta + 7$
- 19 $\Delta + \Delta$ $\Delta + 5$
- 20 $\Delta + 14\frac{1}{2}$ $\Delta + \Delta + 7$

Create your own problems with an answer of $\Delta = 5$.

Easy:

Medium

Hard:

Task 3: Find the value of Δ in each equation.

1 $2\Delta + 1 = 7$

2 $2\Delta + 5 = 9$

3 $3\Delta + 1 = 10$

4 $5\Delta + 1 = 11$

5 $3\Delta + 2 = 14$

6 $4\Delta + 2 = 10$

7 $5\Delta + 3 = 8$

8 $2\Delta + 9 = 16$

9 $4\Delta + 6 = 12$

10 $4\Delta + 10 = 15$

11 $2\Delta = \Delta + 7$

12 $3\Delta = 2\Delta + 5$

13 $4\Delta = 2\Delta + 8$

14 $5\Delta = 3\Delta + 10$

15 $8\Delta = 5\Delta + 6$

16 $12\Delta = 8\Delta + 4$

17 $4\Delta = \Delta + 15$

18 $6\Delta = 4\Delta + 7$

19 $3\Delta + 4 = 5\Delta$

20 $\Delta + 7 = 3\Delta$

21 $2\Delta + 1 = \Delta + 4$

22 $3\Delta + 4 = 2\Delta + 6$

23 $4\Delta + 7 = 3\Delta + 10$

24 $5\Delta + 2 = 3\Delta + 8$

25 $3\Delta + 8 = \Delta + 10$

26 $6\Delta + 1 = 4\Delta + 2$

27 $2\Delta + 7 = 3\Delta + 5$

28 $6\Delta + 5 = 9\Delta + 4$

29 $4\Delta + 5 = 7\Delta + 1$

30 $9\Delta + 1 = \Delta + 13$

Write your own equations with a solution of $\Delta = 6$.

Easy:

=

Medium:

=

Hard:

=

Find the value of Δ in each equation, leaving each answer as a fraction.

31 $3\Delta + 1 = 11$

32 $6\Delta = 2\Delta + 13$

33 $6\Delta + 2 = 10\Delta$

34 $5\Delta + 1 = 8\Delta$

35 $8\Delta + 9 = 6\Delta + 10$

36 $3\Delta + 7 = 7\Delta + 2$

37 $9\Delta + 6\Delta = 12 + 5\Delta$

38 $9\Delta + 2 = 2\Delta + 7$

Write your own equations with a solution of $\Delta = \frac{2}{3}$.

Easy:

=

Medium:

=

Hard:

=

Task 4: Solve each equation both visually and algebraically.

a $4x + 5 = 3x + 8$

$4x = 3x + 3$

$x = 3$

b $8x + 4 = 7x + 6$

c $7x + 3 = 5x + 9$

$7x =$

$2x =$

$x =$

d $6x + 1 = 3x + 13$

e $12x + 7 = 2x + 27$

f $14x + 6 = 7x + 13$

g $8x + 1 = 4x + 15$

h $3x + 4 = x + 9$

i $x + 18 = 6x + 3$

j $8x + 19 = 12x + 5$

Task 5: Write down and solve the equation shown in each bar model.

x	18	
30		

$3x$	9	
42		

$2x$	30	
$5x$		

$4x$	12	
$2x$	30	

$3x$	40	
$8x$	15	

$7x$	8	
x	50	

$3x$	40	
46	$2x$	

$3x$	31	$2x$
$9x$	11	

$13x$	4.4	
$3x$	44.4	

$$5x + 4 = x + 16$$

=

=

Task 6: Negative numbers recap

a $9 - \square = 4$	b $9 + \square = 4$	c $9 - \square = -4$	d $9 + \square = -4$
e $\square - 8 = 15$	f $\square + 8 = 15$	g $\square - 8 = -15$	h $\square + 8 = -15$
i $5 + \square = 21$	j $5 - \square = 21$	k $5 - \square = -21$	l $5 + \square = -21$
m $\square - 14 = 3$	n $\square + 14 = 3$	o $\square - 14 = -3$	p $\square + 14 = -3$
q $6 + \square = 17$	r $2 - \square = 9$	s $-13 - 4 = \square$	t $\square - 1 = -15$
u $\square - 7 = -19$	v $\square + 8 = -6$	w $\square - 11 = 0$	x $\square + 16 = 0$

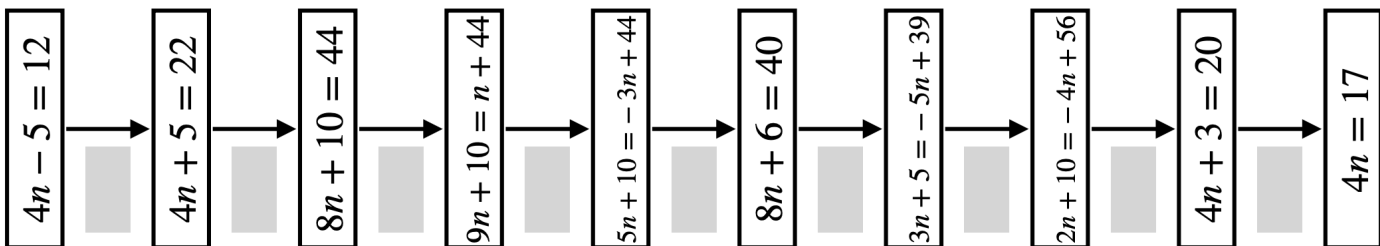
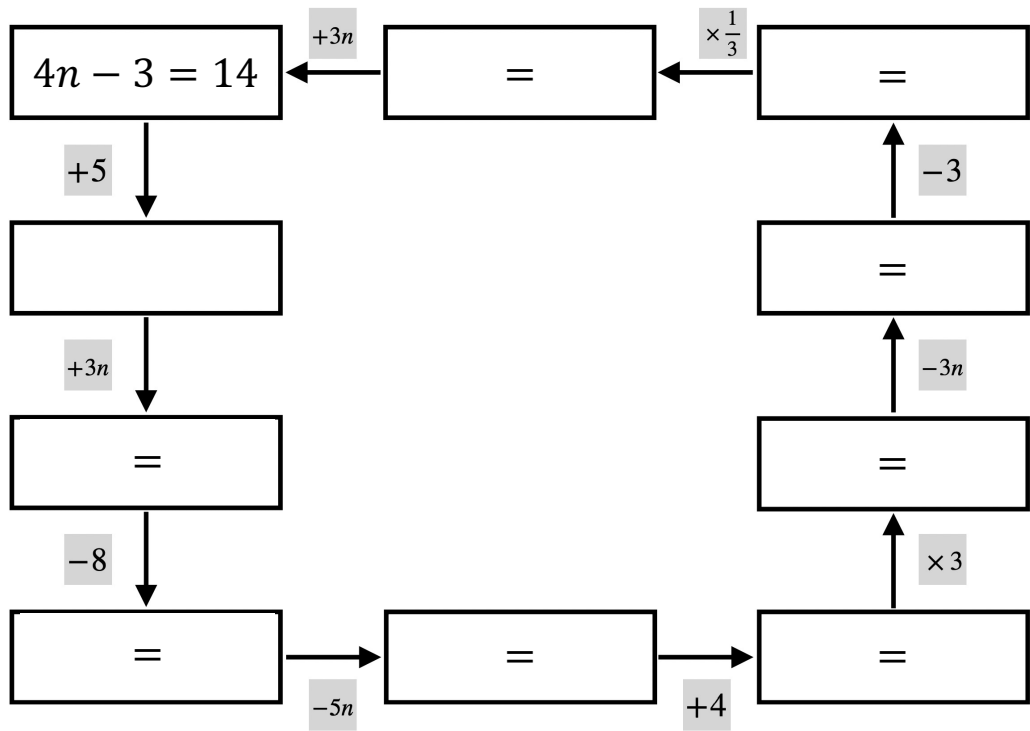
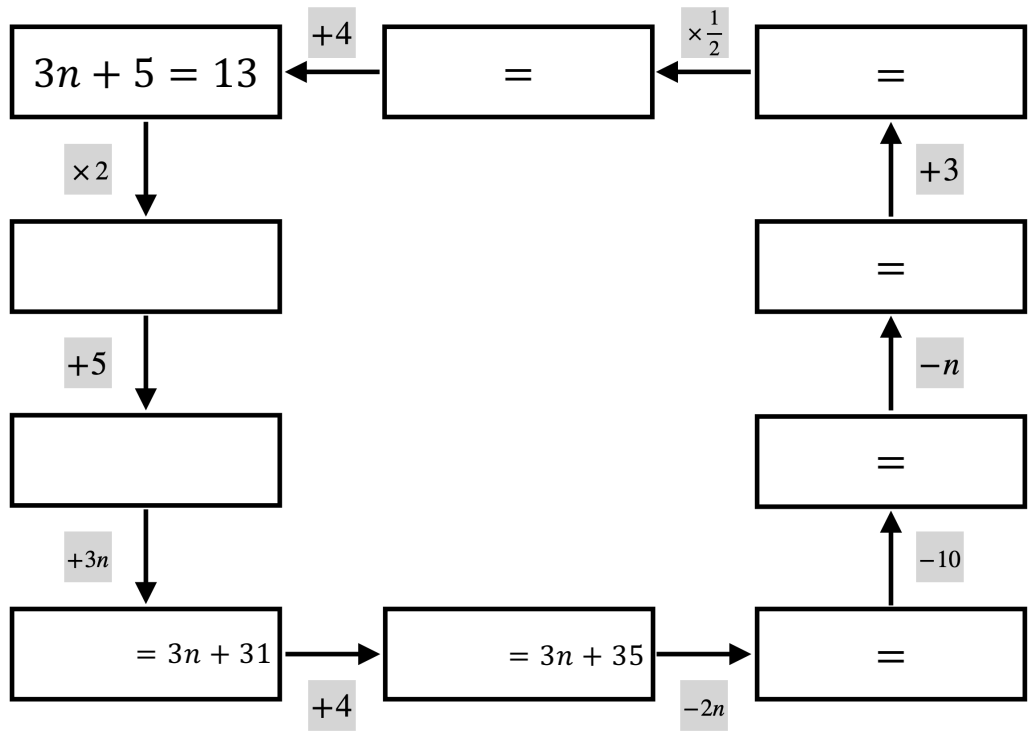
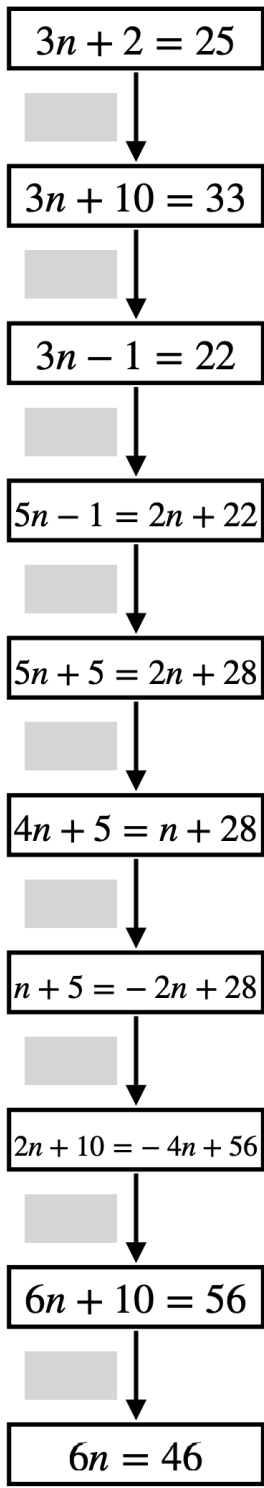
Task 7: Solve each of the following:

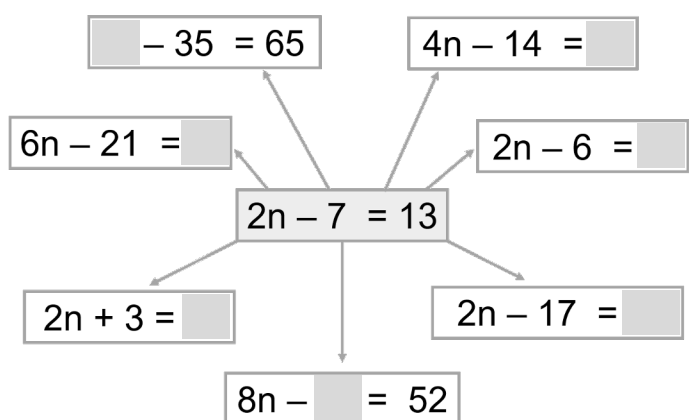
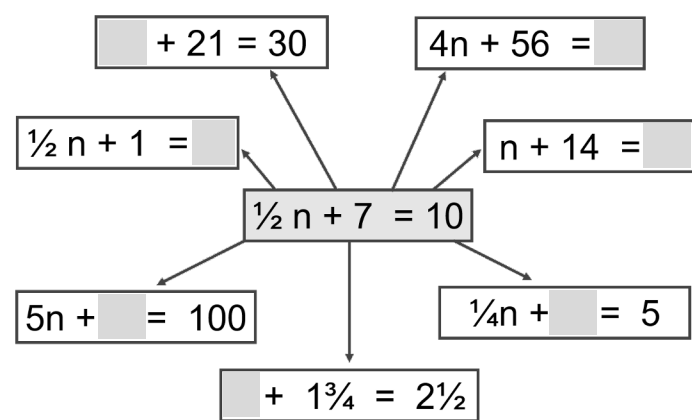
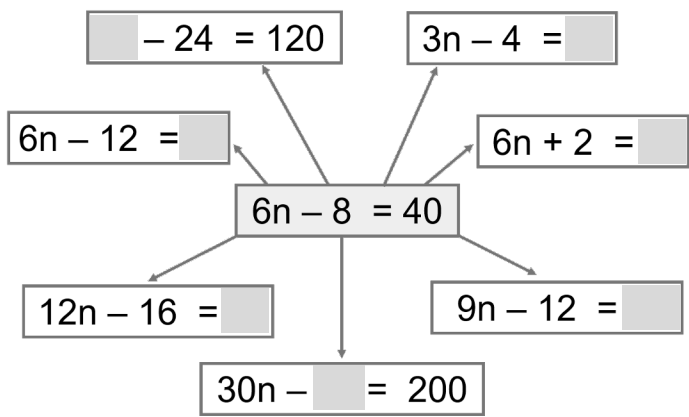
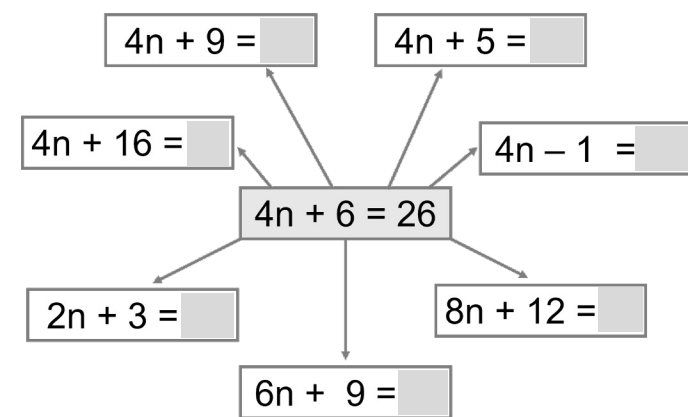
a $x + 4 = 12$ $x =$	b $x - 4 = 12$ $x =$	c $x + 4 = -12$ $x =$	d $x - 4 = -12$ $x =$
e $4x = 12$	f $4x = -12$	g $-4x = 12$	h $-4x = -12$
i $3 + x = 15$	j $3 - x = 15$	k $3 + x = -15$	l $3 - x = -15$
m $-3 + x = 15$	n $-3 - x = 15$	o $-3 + x = -15$	p $-3 - x = -15$
q $3x = 15$	r $-3x = 15$	s $3x = -15$	t $-3x = -15$
u $\frac{x}{15} = 3$	v $\frac{x}{15} = -3$	w $\frac{15}{x} = 3$	x $\frac{15}{x} = -3$

Task 8: Simplify each of the following:

a $3x - 7x$	b $3x + y - 2x - 4y$	c $5x + 2y - 6x - 2y$	d $-3x + y + 5x - 2y$
e $3(2x - 5)$	f $3(-2x + 5)$	g $-3(2x + 5)$	h $-3(2x - 5)$
i $x + 3(2x - 5)$	j $x - 3(2x - 5)$	k $-x - 3(2x - 5)$	l $-x + 3(2x - 5)$

Task 9: Equivalent Equations



Task 10: Fill in the shaded boxes**Task 11:** Solving equations with negatives

$8x + 7 = 6x + 19$

$8x + 7 = 6x - 19$

$8x - 7 = 6x + 19$

$8x - 7 = 6x - 19$

$8x - 19 = 6x - 7$

$6x + 7 = 8x - 19$

Task 12: Solve each of the equations

a $4x - 2 = 3x + 1$	b $3x - 4 = 2x + 3$	c $6x - 7 = 5x - 1$	d $7x + 8 = 5x + 14$
e $5x - 9 = 3x - 5$	f $8x - 7 = 2x + 5$	g $6x - 3 = 4x + 7$	h $7x + 1 = x - 5$
i $9x - 6 = 5x + 2$	j $9x + 4 = 6x + 10$	k $7x - 5 = 5x - 2$	l $3x - 4 = x + 1$
m $4x - 7 = x$	n $x - 1 = \frac{1}{2}x - 4$	o $3x - 4 = x + 9$	p $6x + 9 = 2x + 1$
q $9x - 7 = x + 1$	r $4x - 6 = x$	s $2x - 5 = \frac{1}{2}x + 1$	t $3x + 4 = 5x - 2$
u $3x - 8 = 6x + 1$	v $4x = 6x - 8$	w $x - 3 = \frac{3}{4}x + 1$	x $\frac{1}{2}x - 2 = \frac{1}{4}x + 2$

Task 13: Solving Equations with Brackets

$$2(x + 3) = 16$$

$$2(x - 3) = 16$$

$$2(5x + 3) = 16$$

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

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

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

Task 14: Match the equations to their solutions

a	$3(3x + 2) = 2(3x + 6)$	i	$3(5x - 2) = 4(3x + 6)$		$x = 0$		$x = 6$
b	$2(5x + 1) = 4(2x + 3)$	j	$2(3x - 4) = 4x + 3$		$x = 0.5$		$x = 6.5$
c	$9(x - 2) = 3(x - 6)$	k	$5(2x - 3) = 8x + 1$		$x = 1$		$x = 7$
d	$5(2x + 1) = 3(3x + 4)$	l	$9x - 1 = 2(4x + 1)$		$x = 2$		$x = 8$
e	$3(6x + 5) = 4(4x + 7)$	m	$22x - 4 = 6(3x + 2)$		$x = 3$		$x = 8.5$
f	$8(x + 3) = 2(2x + 13)$	n	$3(2x - 5) = 2(2x + 1)$		$x = 4$		$x = 9$
g	$5(2x - 1) = 3(3x + 2)$	o	$5(4x - 3) = 7(2x + 3)$		$x = 5$		$x = 10$
h	$4(3x - 1) = 2(5x + 7)$	p	$7(7x - 4) = 3(9x - 2)$		$x = 5.5$		$x = 11$