

## Equations - Introduction

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# Introduction to equations

Write the number in the box that makes the number statement true.

Write the problem as an equation.

$$\square + 7 = 13$$

$$12 - \square = 8$$

$$\square + 6 = 14$$

$$\square - 4 = 6$$

$$\square + 8 = 14$$

$$11 - \square = 6$$

$$9 + \square = 12$$

$$\square - 7 = 3$$

The numbers must be the same

$$\square + \square = 10$$

$$\square + \square = 14$$

$$\square + \square + \square = 12$$

$$\square + \square + \square = 18$$

Solve these equations

$$1 \quad x + 2 = 10$$

$$2 \quad a - 1 = 8$$

$$3 \quad b + 7 = 12$$

$$4 \quad 12 - x = 8$$

$$5 \quad 5 + c = 7$$

$$6 \quad 2x = 6$$

$$7 \quad 3x = 6$$

$$8 \quad 10 - x = 7$$

$$9 \quad 2x + 1 = 9$$

$$10 \quad 2x - 1 = 5$$

# Equations

some x's = a number

1)  $x = 36$

2)  $2x = 36$

3)  $3x = 36$

4)  $4x = 36$

5)  $5x = 36$

6)  $6x = 36$

7)  $36 = 9x$

8)  $36 = 12x$

9)  $\frac{x}{2} = 36$

10)  $\frac{x}{3} = 36$

some x's plus a number = a number

1)  $x + 2 = 20$

2)  $2x + 2 = 20$

3)  $2 + 3x = 20$

4)  $4x + 2 = 20$

5)  $\frac{x}{2} + 2 = 20$

6)  $20 = 6x + 2$

some x's take a number = a number

1)  $x - 3 = 21$

2)  $2x - 3 = 21$

3)  $3x - 3 = 21$

4)  $4x - 3 = 21$

5)  $\frac{x}{2} - 3 = 21$

6)  $21 = 6x - 3$

## Bonus Questions

1)  $7x - 2 = 19$

2)  $4x + 1 = 17$

3)  $23 = 4x - 5$

Put the number in the box that makes the statement true. Then solve for x

1  $\boxed{2x} + 1 = 13$   $x =$  7  $\boxed{6x} + 1 = 13$   $x =$  13)  $6x + 2 = 8$   
 $\boxed{2x} + 1 = 13$

2  $\boxed{3x} - 2 = 7$   $x =$  8  $\boxed{5x} - 2 = 18$   $x =$  14)  $3x + 3 = 15$   
 $\boxed{3x} - 2 = 7$

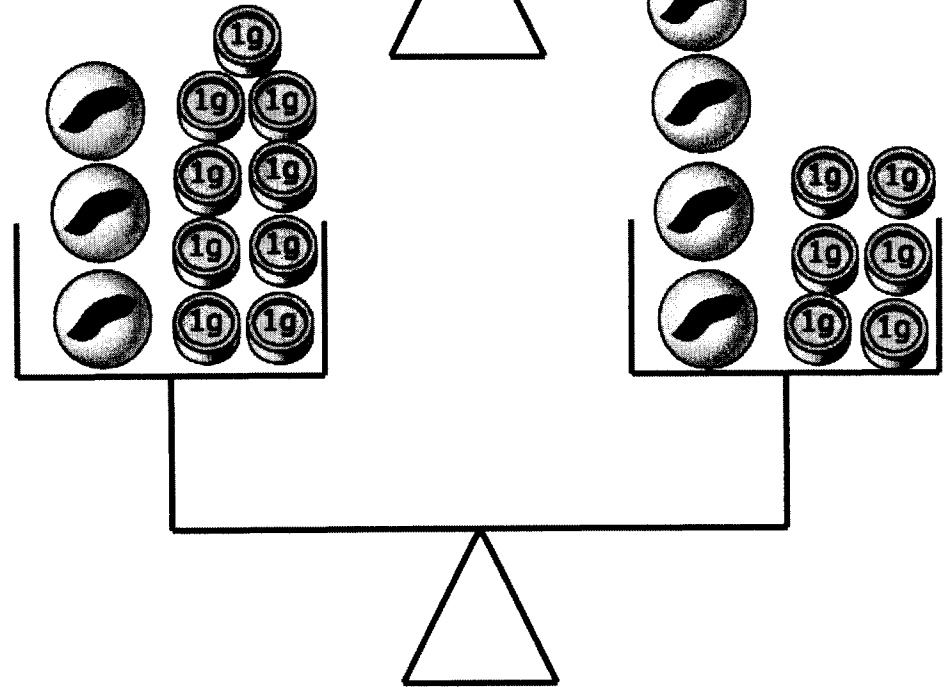
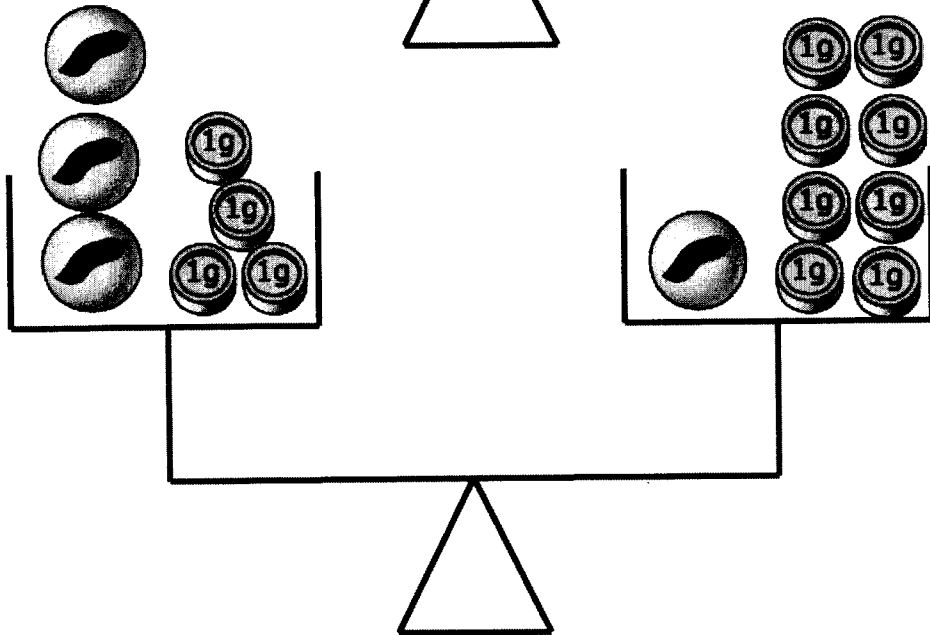
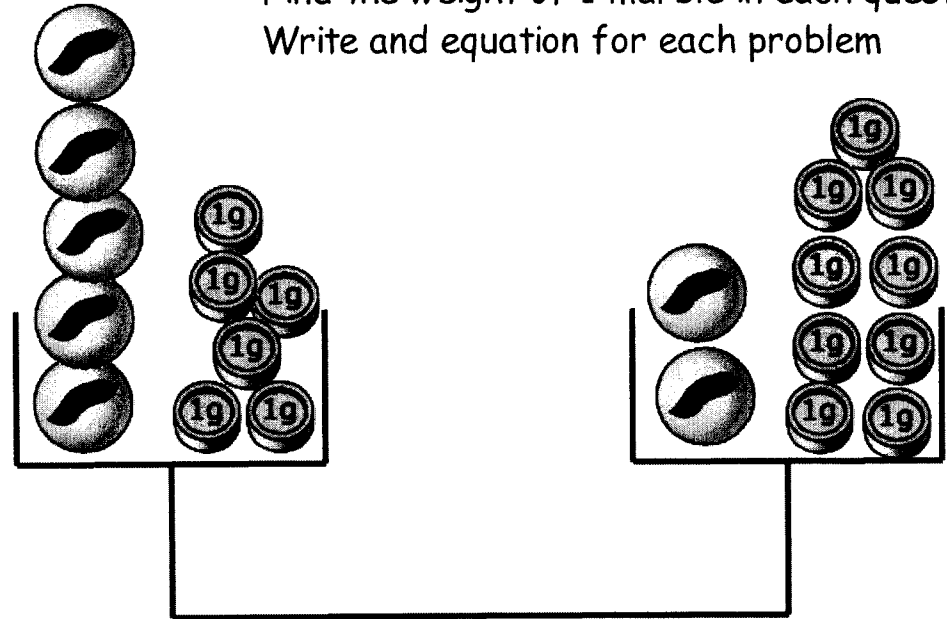
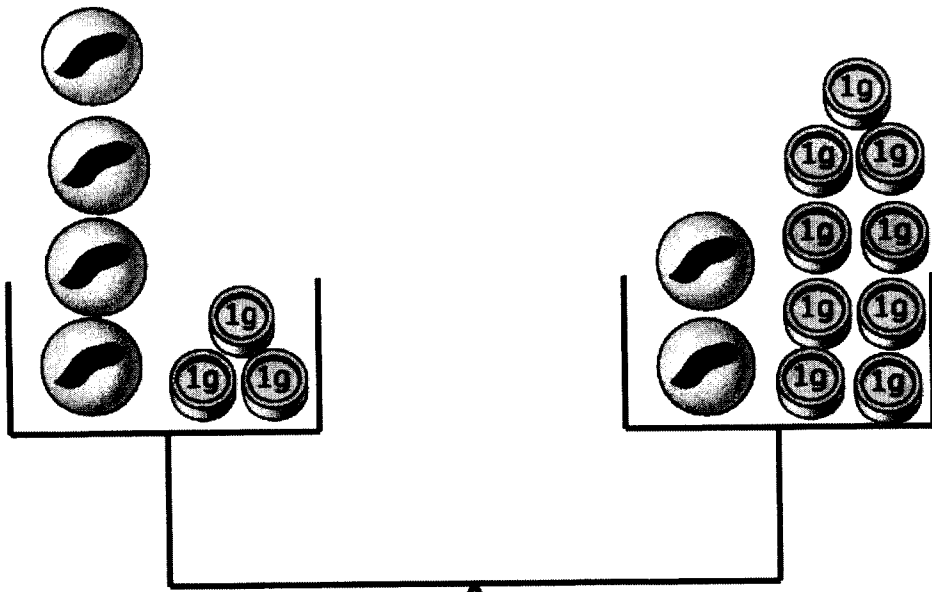
3  $\boxed{4x} - 1 = 19$   $x =$  9  $\boxed{7x} - 1 = 13$   $x =$  15)  $4x + 2 = 10$   
 $\boxed{4x} - 1 = 19$

4  $\boxed{5x} + 3 = 13$   $x =$  10  $10 - \boxed{2x} = 6$   $x =$  16)  $2x - 5 = 5$   
 $\boxed{5x} + 3 = 13$   
 $10 - \boxed{2x} = 6$

5  $\boxed{2x} - 7 = 5$   $x =$  11  $14 - \boxed{3x} = 5$   $x =$  17)  $\frac{x}{2} - 2 = 4$   
 $\boxed{2x} - 7 = 5$   
 $14 - \boxed{3x} = 5$

6  $\boxed{3x} + 4 = 13$   $x =$  12  $14 - \boxed{4x} = 10$   $x =$  18)  $17 = 2x - 3$   
 $\boxed{3x} + 4 = 13$   
 $14 - \boxed{4x} = 10$

Find the weight of 1 marble in each question  
Write an equation for each problem



1 Arranging for  $x$ 's = numbers or numbers =  $x$ 's  $7x = 21$  or  $21 = 7x$

2 Which side of the equals has the most  $x$ 's or to start with?

Qu 1	$5x - 2 = 12 - 2x$
x's	left
numbers	right
+2x	$7x - 2 = 12$
+2	$7x = 14$
$\div 7$	$x = 2$

Qu 5	$7x - 2 = 3x + 14$
x's	
numbers	
-3x	
+2	
$\div 4$	

Qu 9	$3x + 17 = 5x + 3$
x's	
numbers	

Qu 2	$4x + 2 = 2x + 14$
x's	Left
numbers	Right
-2x	$2x + 2 = 14$
-2	$2x = 12$
$\div 2$	$x = 6$

Qu 6	$6x - 1 = 4x + 11$
x's	
numbers	
-4x	
+1	
$\div 2$	

Qu 10	$7x - 3 = 4x + 27$
x's	
numbers	

Qu 3	$6x - 1 = 3x + 14$
x's	
numbers	
-3x	
+1	
$\div 3$	

Qu 7	$7x + 2 = 2x + 17$
x's	
numbers	

Qu 11	$4 + 7x = 20 - x$
x's	
numbers	

Qu 4	$2x + 12 = 5x + 3$
x's	
numbers	
-2x	
-3	
$\div 3$	

Qu 8	$8x - 3 = 3x + 17$
x's	
numbers	

Qu 12	$20 - 2x = 4 + 2x$
x's	Right
numbers	Left
+2x	$20 = 4 + 4x$
-4	$16 = 4x$
$\div 4$	$x = 4$

3 Move the  $x$ 's to this side.

4 Move the numbers to the other side.

5 To move and 'add' term take, a 'take' term add.

(5)

"x" on both sides of the equals sign

All terms are POSITIVE

1  $4x + 17 = 2x + 24$

7  $x + 12 = 3x + 4$

2  $8x + 11 = 6x + 27$

8  $2x + 23 = 14 + 5x$

3  $10x + 3 = 7x + 39$

9  $3x + 17 = 5x + 1$

4  $5x + 19 = 3x + 32$

10  $x + 19 = 6x + 4$

5  $4x + 75 = 10x + 9$

11  $5 + 4x = x + 20$

6  $13x + 5 = 8x + 15$

12  $2x + 13 = 8x + 1$

A mixture of positive and negative terms

13  $5x - 2 = 3x + 10$

19  $8 - x = 12 - 2x$

14  $2x + 12 = 4x - 8$

20  $8x - 5 = 3x - 15$

15  $7x + 1 = 17 - x$

21  $7x - 2 = 2x + 2$

16  $20 - 2x = 2x + 4$

22  $8 - 2x = 10 + 2x$

17  $7x - 2 = 8 - 3x$

23  $15 - x = 2x + 15$

18  $13 - 3x = 3x - 5$

24  $-8 - 5x = -14 - 7x$