

Algebra II



Linear equation for class VI

Definitions

- Equation – A mathematical sentence stating that 2 expressions are equal.
- $12 - 3 = 9$
- $8 + 4 = 12$

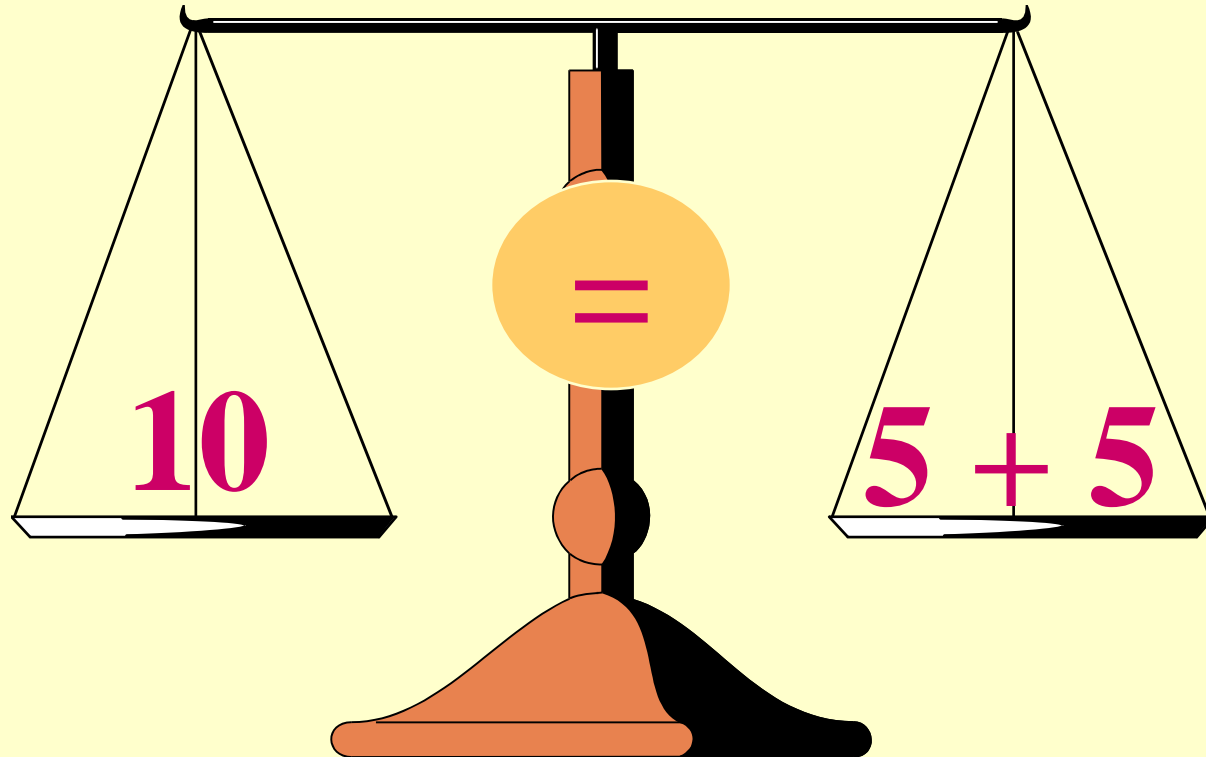
Definitions

- Equation – A mathematical sentence with an equals sign.
- $16 - 5 = 11$
- $14 + 3 = 17$

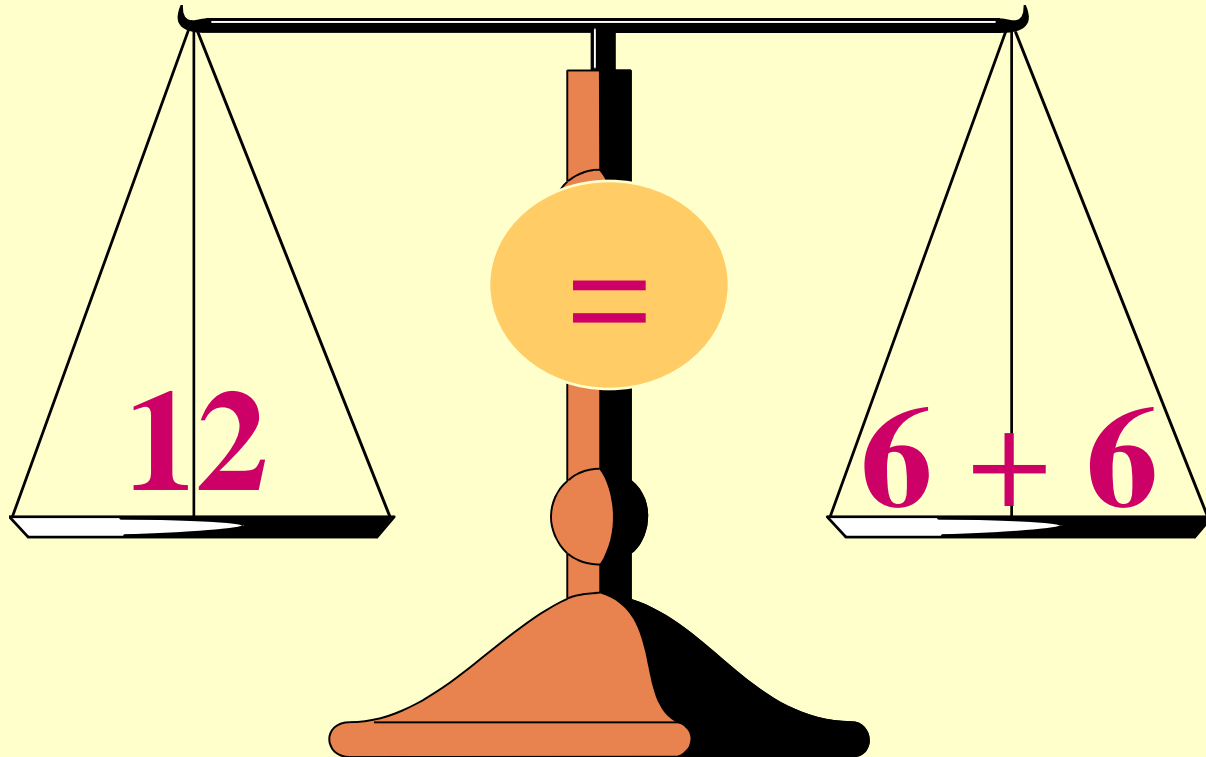
Definitions

- Equals Sign (=) Means that the amount is the same on both sides.
- $4 + 2 = 6$
- $5 - 2 = 3$

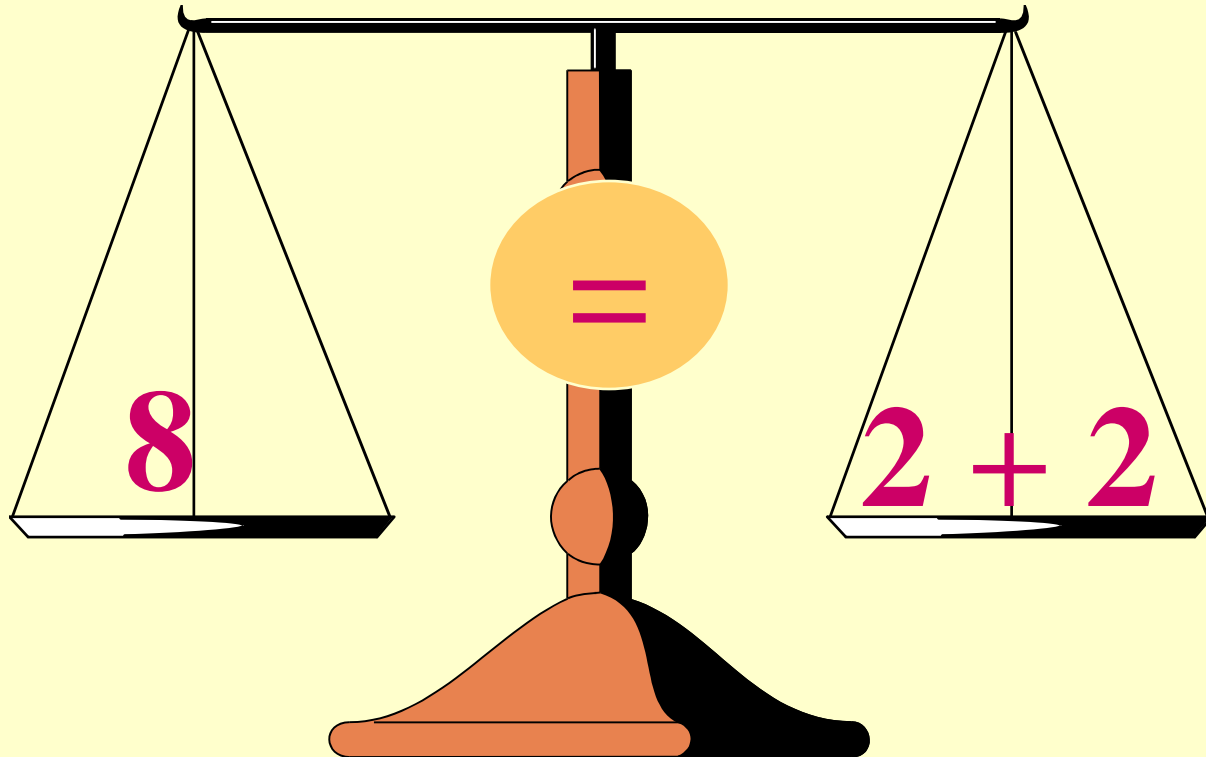
An Equation is like a balance scale. Everything must be equal on both sides.



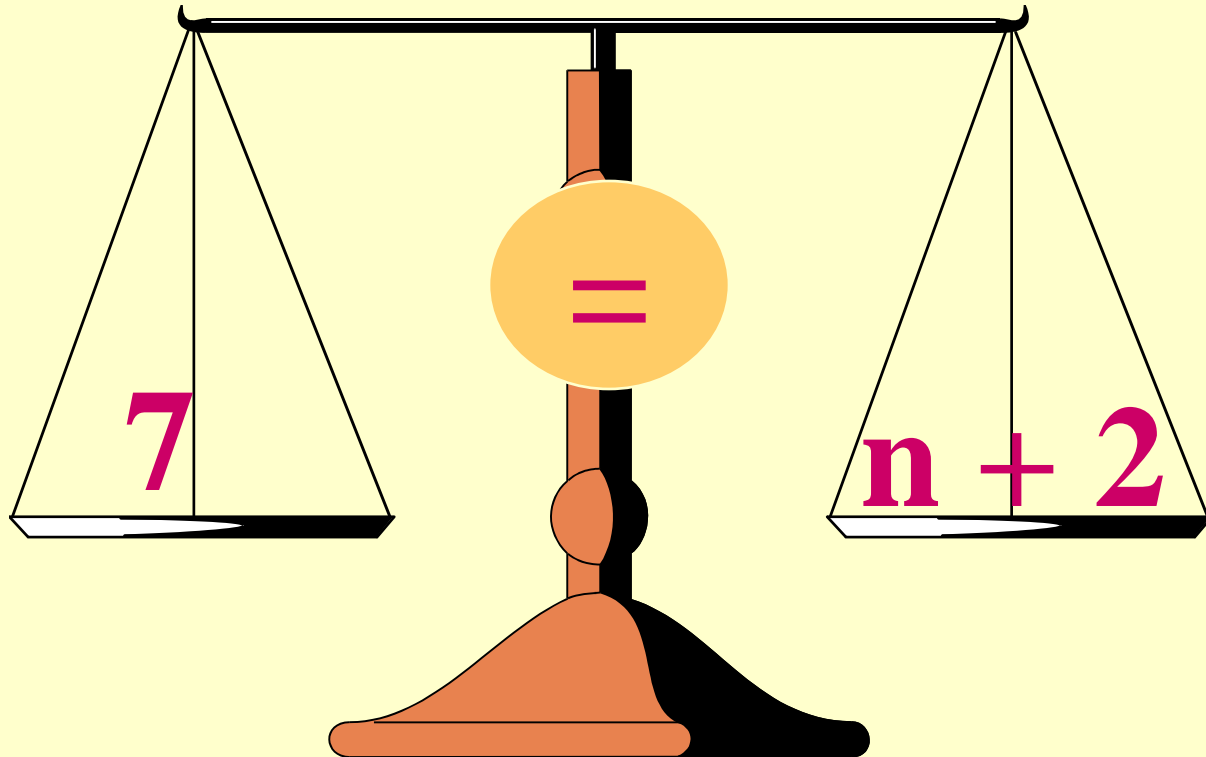
When the amounts are equal on both sides it is a true equation.



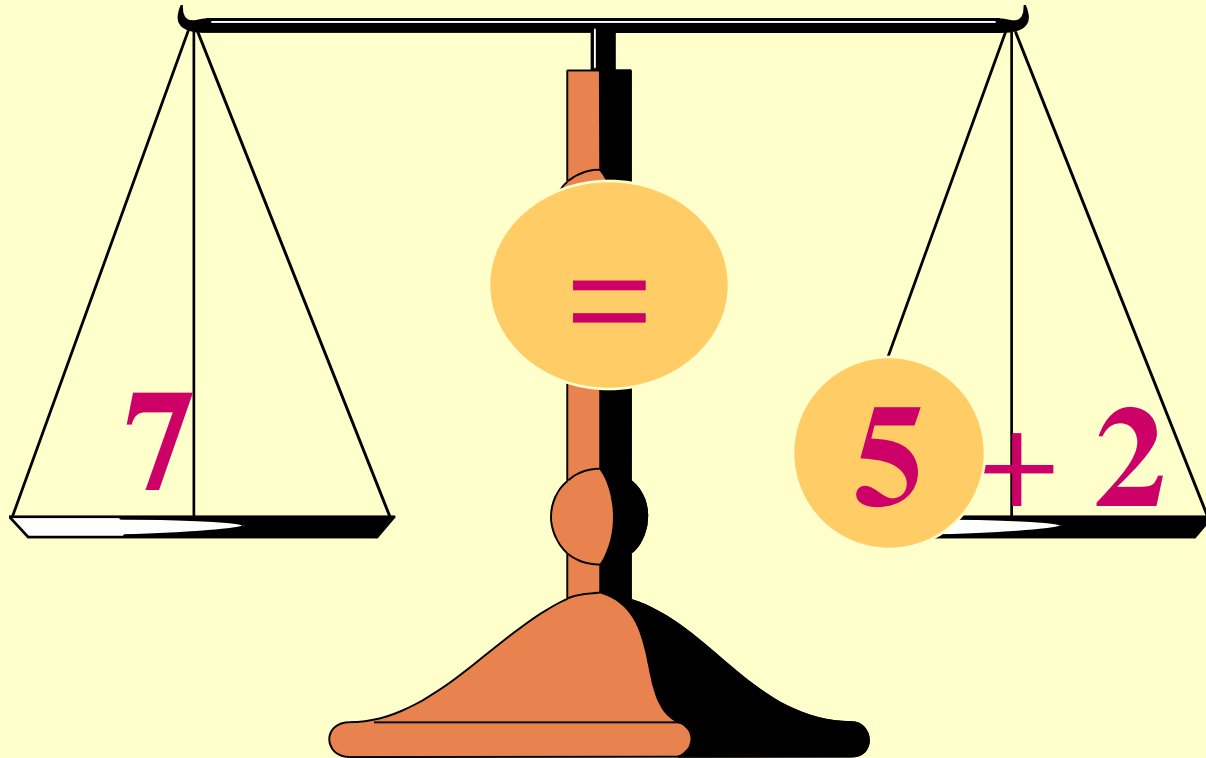
When the amounts are unequal on both sides it is a false equation.



When an amount is unknown on one side of the equation it is an open equation.



When you find a number for n you change the open equation to a true equation. You solve the equation.



Are these equations true, false or open?



- $11 - 3 = 5$ false
- $13 + 4 = 17$ true
- $N + 4 = 7$ open
- $12 - 3 = 8$ false
- $3 + v = 13$ open
- $15 - 6 = 9$ true

Definitions

- *Inverse operation – the opposite operation used to undo the first.*
- $4 + 3 = 7$ $7 - 4 = 3$
- $6 \times 6 = 36$ $36 / 6 = 6$

How to solve an addition equation

- Use the inverse operation for addition which is subtraction
- $m + 8 = 12$ $12 - 8 = 4$
- $m = 4$ 4 + 8 = 12

How to solve a subtraction equation

- Use the inverse operation for subtraction which is addition

- $m - 3 = 5$ $5 + 3 = 8$

- $m = 8$ $\underline{8} - 3 = 5$

*Solve these equations using
the inverse operations*

• $n + 4 = 7$ 3

• $n - 5 = 4$ 9

• $n + 4 = 17$ 13

• $n - 6 = 13$ 19

• $n + 7 = 15$ 8

• $n - 8 = 17$ 9

Commutative Property

- $5 + 4 = 9$

$$4 + 5 = 9$$

- $a + b = c$

$$b + a = c$$

- $6 + 3 = 9$

$$3 + 6 = 9$$

- $x + y = z$

$$y + x = z$$

- $3 + 4 + 1 = 8$

$$1 + 3 + 4 = 8$$

Solve these equations using the commutative property

• $n + 7 = 7 + 4$ $n = 4$

• $m + 2 = 2 + 5$ $m = 5$

• $z + 3 = 3 + 9$ $z = 9$

• $g + 6 = 6 + 11$ $g = 11$

• $s + 4 = 4 + 20$ $s = 20$

• $c + 8 = 8 + 32$ $c = 32$

The Identity Property of Addition

- $7 + 0 = 7$

- $a + 0 = a$

- $8 + 0 = 8$

- $c + 0 = c$

- $2 + 0 = 2$

Use the Identity Property of addition to solve these problems

• $n + 0 = 8$ $n = 8$

• $b + 0 = 7$ $b = 7$

• $m + 0 = 3$ $m = 3$

• $v + 0 = 5$ $v = 5$

• $w + 0 = 4$ $w = 4$

• $r + 0 = 2$ $r = 2$

Subtraction Rules of zero

- $7 - 7 = 0$
- $n - n = 0$
- $4 - 0 = 4$
- $n - 0 = n$

*Find the value of n using the rules
of subtraction*

• $n - 8 = 0$ $n = 8$

• $n - 9 = 0$ $n = 9$

• $n - 0 = 7$ $n = 7$

• $n - 0 = 9$ $n = 9$

• $n - 7 = 0$ $n = 7$

• $n - 0 = 5$ $n = 5$