

Practice

Solving Equations: Definitions – Values, Expressions, Equations, and Solutions

Answer these problems, then check your answers using the key on the next page. If you missed something, look at the solutions after the answer key, and if you still don't understand, watch the review video again.

#1) Evaluate: $18 - 2(3)$

#2) Evaluate: $\frac{2}{5} + \frac{3}{10}$

#3) Evaluate: $5x - 2$ if $x = 4$

#4) State whether each item is an expression or an equation:

a) $-3x^2 - 2$

b) $14y = 7$

c) $\frac{2c^2 + 17x^4}{x^2 - 19x + 2b}$

d) $2y + 3x = 6$

#5) Is $x = -3$ a solution to the equation $2x + 3 = 9$?

#6) Is $x = 5$ a solution to the equation $4x - 8 = 12$?

#7) Which ordered pair is a solution of $y = 2x + 3$?

- a) $(-4, -5)$ b) $(-2, 7)$ c) $(2, 3)$ d) $(3, 0)$

#8) Which ordered pair is a solution of $3x - 2y - 5 = 0$?

- a) $(3, 2)$ b) $(1, 1)$ c) $(-3, -2)$ d) $(-5, 5)$

#9) Complete the table:

x	$2x - 3$
6	
-8	
	49
	-21
	2

Answers:

#1) 12

#2) $\frac{7}{10}$

#3) 18

#4) a) expression, b) equation, c) expression, d) equation

#5) no

#6) yes

#7) a

#8) a

#9) 9, -19, 26, -9, $\frac{5}{2}$ (see solutions)

Solutions:

#1) Evaluate: $18 - 2(3)$

$$18 - 6$$
$$\boxed{12}$$

#2) Evaluate: $\frac{2}{5} + \frac{3}{10}$

$$\frac{2 \cdot 2}{2 \cdot 5} + \frac{3}{10}$$
$$\frac{4}{10} + \frac{3}{10} = \boxed{\frac{7}{10}}$$

#3) Evaluate: $5x - 2$ if $x = 4$

$$5(4) - 2$$
$$20 - 2$$
$$\boxed{18}$$

#4) State whether each item is an expression or an equation:

a) $-3x^2 - 2$
expression
(no = sign)

b) $14y = 7$
equation
(= sign)

c) $\frac{2c^2 + 17x^4}{x^2 - 19x + 2b}$
expression
(no = sign)

d) $2y + 3x = 6$
equation
(= sign)

#5) Is $x = -3$ a solution to the equation $2x + 3 = 9$?

$$2(-3) + 3 \stackrel{?}{=} 9$$
$$-6 + 3 \stackrel{?}{=} 9$$
$$-3 \stackrel{?}{=} 9 \quad \boxed{\text{no}}$$

#6) Is $x = 5$ a solution to the equation $4x - 8 = 12$?

$$4(5) - 8 \stackrel{?}{=} 12$$
$$20 - 8 \stackrel{?}{=} 12$$
$$12 \stackrel{?}{=} 12$$
$$\boxed{\text{yes}}$$

#7) Which ordered pair is a solution of $y = 2x + 3$?

a) $(-4, -5)$

$$y = 2x + 3$$

$$(-5) = 2(-4) + 3$$

$$-5 = -8 + 3$$

$$-5 = -5 \checkmark$$

yes

b) $(-2, 7)$

$$y = 2x + 3$$

$$(7) = 2(-2) + 3$$

$$7 = -4 + 3$$

$$7 = -1$$

no

c) $(2, 3)$

$$y = 2x + 3$$

$$(3) = 2(2) + 3$$

$$3 = 4 + 3$$

$$3 = 7$$

no

d) $(3, 0)$

$$y = 2x + 3$$

$$(0) = 2(3) + 3$$

$$0 = 6 + 3$$

$$0 = 9$$

no

#8) Which ordered pair is a solution of $3x - 2y - 5 = 0$?

a) $(3, 2)$

$$3x - 2y - 5 = 0$$

$$3(3) - 2(2) - 5 = 0$$

$$9 - 4 - 5 = 0$$

$$4 - 5 = 0$$

$$-1 = 0$$

yes

b) $(1, 1)$

$$3x - 2y - 5 = 0$$

$$3(1) - 2(1) - 5 = 0$$

$$3 - 2 - 5 = 0$$

$$1 - 5 = 0$$

$$-4 = 0$$

no

c) $(-3, -2)$

$$3x - 2y - 5 = 0$$

$$3(-3) - 2(-2) - 5 = 0$$

$$-9 + 4 - 5 = 0$$

$$-5 - 5 = 0$$

$$-10 = 0$$

no

d) $(-5, 5)$

$$3x - 2y - 5 = 0$$

$$3(-5) - 2(5) - 5 = 0$$

$$-15 - 10 - 5 = 0$$

$$-30 = 0$$

no

#9) Complete the table:

x	2x - 3
6	9
-8	-19
26	49
-9	-21
$\frac{5}{2}$	2

$$2x - 3 = 49$$

$$+3 \quad +3$$

$$\frac{2x}{2} = \frac{52}{2}$$

$$x = 26$$

$$2x - 3 = -21$$

$$+3 \quad +3$$

$$\frac{2x}{2} = \frac{-18}{2}$$

$$x = -9$$

$$2x - 3 = 2$$

$$+3 \quad +3$$

$$\frac{2x}{2} = \frac{5}{2}$$

$$x = \frac{5}{2}$$

$$2(-8) - 3$$

$$-16 - 3$$

$$-19$$

$$2(6) - 3$$

$$12 - 3$$

$$9$$