

5.1 One Step Equations

PRACTICE

Directions: For each equation, write a verbal translation, model the situation and find the solution.

1) $h + 6 = 8$

Verbal:

An unknown plus 6 equals 8.

Opposite:

Subtract 6

Solution: 2

2) $b - 3 = 5$

Verbal:

An unknown minus 3 equals 5.

Opposite:

Add 3.

Solution: 8

3) $2n = 6$

Verbal:

A number times 2 equals 6.

Opposite:

Dividing by 2.

Solution:

3

Directions: Solve and check each equation.

4) $8 = k - 5$
 $+5 \quad +5$
 $13 = k$

$8 = 13 - 5$
 $8 = 8 \checkmark$

5) $9\left(\frac{b}{8}\right) - 3(9)$
 $b = -24$

$\frac{-24}{9} = -3$
 $-3 = -3 \checkmark$

6) $16 = -4v$
 $-4 \quad -4$
 $-4 = v$

$16 = -4(-4)$
 $16 = 16 \checkmark$

7) $1.2 = \frac{t}{3}$
 $3 \quad 3$
 $3.6 = t$

$1.2 = \frac{3.6}{3}$
 $1.2 = 1.2 \checkmark$

8) $5 + m = -8$
 $-5 \quad -5$
 $m = -13$

$5 + (-13) = -8$
 $-8 = -8 \checkmark$

9) $-3a = -15$
 $-3 \quad -3$
 $9 = 5$

$-3(5) = -15$
 $-15 = -15 \checkmark$

10) $-6 = -8 + j$
 $+8 \quad +8$
 $2 = j$

$-6 = -8 + 2$
 $-6 = -6 \checkmark$

11) $18 = -a$
 $-1 \quad -1$
 $-18 = a$

$18 = -(-18)$
 $18 = 18 \checkmark$

12) $-5.2 = n - 1.4$
 $+1.4 \quad +1.4$
 $-3.8 = n$

$-5.2 = -3.8 - 1.4$
 $-5.2 = -5.2 \checkmark$

13) $h + 6 = 8$
 $-6 \quad -6$
 $h = 2$

$2 + 6 = 8$
 $8 = 8 \checkmark$

14) $-8 + k = -8$
 $+8 \quad +8$
 $k = 0$

$-8 + 0 = -8$
 $-8 = -8 \checkmark$

15) $3(-10) = \frac{y}{3}$
 $-30 = y$

$-10 = \frac{-30}{3}$
 $-10 = -10 \checkmark$

Directions: Sully solved the following. Check his solution to see if it is correct. If incorrect, find the correct solution.

16) Sully says $h = 4$

$$5h = -20$$
$$5(4) = -20$$
$$20 \neq -20 \text{ NOPE!}$$

$$\frac{5h}{5} = \frac{-20}{5}$$
$$h = -4$$

17) Sully says $n = -4$

$$0.25n = 8$$
$$.25(-4) = 8$$
$$-1 \neq 8 \text{ NOPE!}$$

$$\frac{.25n}{.25} = \frac{8}{.25}$$
$$n = 32$$

Directions: Brust solved the following equations. He DEFINITELY made some mistakes! Using complete sentences explain his mistake and then find the correct solution.

18)

$$h + 5 = -4$$
$$\frac{+4}{+4} = \frac{+4}{+4}$$
$$h + 9 = 0$$
$$h = 9$$

HE ADDED
4 TO BOTH
SIDES.

$$h + 5 = -4$$
$$\frac{-5}{-5} = \frac{-5}{-5}$$
$$h = -9$$

19)

$$2 + x = -10$$
$$\frac{+2}{+2} = \frac{+2}{+2}$$
$$x = -8$$

SHOULD
SUBTRACT
BY 2.

$$2 + x = -10$$
$$\frac{-2}{-2} = \frac{-2}{-2}$$
$$x = -12$$