

SHOW ALL WORK. Word Bank: empty (or null), linear, rational, { } or \emptyset , first, contradiction, solution, identity, set, conditional, equivalent, division, addition

Provide the missing information.

- 1) An equation that can be written in the form $ax + b = 0$ where a and b are real numbers and $a \neq 0$ is called a _____ equation in one variable.
- 2) A linear equation is also called a _____-degree equation because the degree of the variable is 1.
- 3) A _____ to an equation is the value of the variable that makes the equation a true statement.
- 4) The solution _____ to an equation is the set of all solutions to the equation.
- 5) Two equations are _____ equations if they have the same solution set.
- 6) The _____ property of equality indicates that adding the same real number to both sides of an equation results in an equivalent equation.
- 7) The _____ property of equality indicates that if $a = b$, then $\frac{a}{c} = \frac{b}{c}$ provided that $c \neq 0$.
- 8) A _____ equation is one that is true for some values of the variable and false for others.
- 9) A _____ is an equation that is false for all values of the variable.
- 10) An _____ is an equation that is true for all values of the variable for which the expressions in the equation are defined.
- 11) If an equation has no solution, then the solution set is the _____ set and is denoted by _____.

Solve the equation.

12) $-2(2y + 3) + 2 = 0$

13) $\frac{9}{2}y + 3 = -1$

14) $2(1 - 5x) = 72$

15) $\frac{6}{5}y - \frac{1}{6} = \frac{1}{2}(3y - 1)$

16) $\frac{n + 1}{3} - \frac{n + 4}{4} = \frac{n - 1}{8} - 1$

17) $5(v + 3) + 9 = 17 - (v + 5)$

18) $0.1(x - 6) + 0.5 = 1 - 0.4(12 - 2x) - 0.5$

Solve the problem.

- 19) The cost C (in \$) for tuition and fees for x credit-hours at City College is given by $C = 184.95x + 91$.
Determine the cost of 18 credit-hours.

- 20) The cost C (in \$) for tuition and fees for x credit-hours at City College is given by $C = 196.75x + 119$.
If a student spends \$3,267.00 for his classes, how many credit-hours did he take?

Determine whether the equation is a conditional equation, an identity, or a contradiction.

21) $4(z + 2) - 2z = -4\left(-\frac{1}{2}z + 1\right) + 12$

22) $21y + 2(3 - y) = 5 + 19y + 2$

23) $y - 2 + 3y = 5y + 4$

Solve the equation.

24) $-4 - 2\{1 - [-4n - 2(n + 5)]\} = 5n + 2(-3 + 4n) - 20$

Find the value of a so that the equation has the given solution set.

25) $ax + 8 = -9x + 20 \quad \{2\}$

Answer Key

Testname: SECTION 1.1A LINEAR EQUATIONS

- 1) linear
- 2) first
- 3) solution
- 4) set
- 5) equivalent
- 6) addition
- 7) division
- 8) conditional
- 9) contradiction
- 10) identity
- 11) empty (or null); $\{ \}$ or \emptyset
- 12) $\{-1\}$
- 13) $\left\{-\frac{8}{9}\right\}$
- 14) $\{-7\}$
- 15) $\left\{\frac{10}{9}\right\}$
- 16) $\{11\}$
- 17) $\{-2\}$
- 18) $\{6\}$
- 19) \$3,420.10
- 20) 16 credit-hours
- 21) Identity
- 22) Contradiction
- 23) Conditional
- 24) $\{0\}$
- 25) $a = -3$