

8 Algebra CC

Unit 3 Review (Equations)

Important Terminology

Equation

Solution Set

Equivalent Equation

Infinite

Properties of Equality

Literal Equation

Inverse Operation

Rational Expression

Proportion

What should I be able to do?

1. Solve simple equations (one-step, two-step, etc...)
2. Solve equations with variables on both sides
3. Solve equations with rational expressions (*fractions*)
4. Solve literal equations
5. Recognize equations with infinite solution sets or no solution
6. Recognize equivalent equations (*equations that have the same solution set*)

Practice Problem Set

Write the letter corresponding to the correct answer. Show all necessary work.

1. What is the solution to $3(x - 5) = x - 1$

a) 2

b) 7

c) 0

d) *there is no solution*

2. If $mx - q = d$, then $x =$

a) $d + q + m$

b) $d + q \cdot m$

c) $\frac{d+q}{m}$

d) $\frac{d-q}{m}$

3. What is the solution to the following equation? $4(x - 1) - 3x = -2x - 4 + 3x$

a) $x = -4$

b) $x = 0$

c) *there is no solution*

d) *x = all real numbers*

4. Which equation has the same solution set as $\frac{1}{2}(6-x) + 3x = \frac{1}{2}x - 8$?

a) $6 - x + 6x = x - 8$

b) $6 - x + 3x = x - 16$

c) $3 + \frac{5}{2}x = \frac{1}{2}x - 8$

d) $6 + 2x = x - 8$

Solve for x. Show all necessary work.

5. $-2 + 3x = 13$

6. $-3x - 4 + x - 6 = -18$

7. $5x - 4 = 3x + 10$

8. $3(5x - 10) = -5x$

9. $\frac{1}{2}(4x - 6) - 17 = 0$

10. $\frac{2x+4}{7} = -2$

Solve for the indicated variable. Show all necessary work.

11. $A = P + Prt$ for t

12. $\frac{m}{n} = \frac{p}{q}$ for p

13. The formula used to find the area of a trapezoid is $A = \frac{1}{2} h(b_1 + b_2)$. Solve this formula for h .

14. Solve each equation below.

a. $\frac{x-2}{4} + \frac{1}{3} = \frac{7}{3}$

b. $\frac{3a}{5} - \frac{a}{2} = \frac{1}{20}$

c. $\frac{x}{3} - 1 = \frac{x}{2} + 3$

15. The formula $T = p + sp$ gives the total cost of an item with price p and sales tax s , expressed as a decimal.

A. Solve this formula for s .

B. The total cost of a sweater, including tax, is \$25.32 (T). Calculate the sales tax (s) if the ticket price of the sweater is \$24 (p). *Represent the tax as a percent.*

16. Examine the literal equation below that has been solved for x . For each step taken, name the property of equality that was applied.

$$ax + b = c$$

$$ax = c - b \text{ _____}$$

$$x = \frac{c - b}{a} \text{ _____}$$