



Vocabulary

Review

1. Circle the *multiplicative inverse* of $\frac{1}{2}$. Underline the *additive inverse* of $\frac{1}{2}$.

2

1

 $\frac{1}{2}$

 $-\frac{1}{2}$

-2

2. Circle the *multiplicative inverse* of -3. Underline the *additive inverse* of -3.

3

1

 $\frac{1}{3}$

 $-\frac{1}{3}$

-3

Vocabulary Builder

isolate (verb) EYE suh layt

Main Idea: To **isolate** a variable in an equation means you get the variable with a coefficient of 1 alone on one side of the equation.

Other Word Forms: isolation (noun), isolated (adjective)

variable *isolated*

variable NOT isolated 5x = 60

Use Your Vocabulary

3. Choose the correct form of the word *isolate* to complete each statement.

isolate

isolation

isolated

A very ill patient was placed in _?_, away from the other patients.

. .

In order to $\underline{?}$ a variable, you may need to perform mathematical operations.

A person living on a small island felt _?_ from the rest of the world.

4. Circle the equations that show the variable *isolated*.

4x + 1 = 13

x = 12 - 7

 $\frac{x}{3} = 10$

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

5. Complete the table.

Property	Algebra	Example		
Addition Property of Equality	For any real numbers a , b , and c , if $a = b$, then $a + c = b + c$.	n-7 = 12 n-7+7 = 12+		
Subtraction Property of Equality	For any real numbers a , b , and c , if $a = b$, then $a - c = b - c$.	n+8=9 $n+8- = 9-$		



Problem 1 Solving an Equation Using Subtraction

Got lt? What is the solution of y + 2 = -6? Check your answer.

6. Underline the correct word to complete each sentence.

The equation y + 2 = -6 shows addition / subtraction.

The inverse of that operation is addition / subtraction.

7. Use the justifications to solve the equation.

$$y + 2 = -6$$

Write the original equation.

_

Subtract 2 from each side.

$$y =$$

Simplify.

8. Check your answer by substituting it in the original equation for *y*. Then simplify.

$$+ 2 = -6?$$

Yes / No

take note

Property Multiplication and Division Properties of Equality

9. Complete the table.

Property	Algebra	Example		
Multiplication Property of Equality	For any real numbers a , b , and c , if $a = b$, then $a \cdot c = b \cdot c$.	$\frac{x}{5} = 10$ $\frac{x}{5} \cdot 5 = 10$		
Division Property of Equality	For any real numbers a , b , and c , such that $c \neq 0$, if $a = b$, then $\frac{a}{c} = \frac{b}{c}$.	$6x = 30$ $\frac{6x}{6} = \frac{30}{100}$		

Got It? What is the solution of 10 = 15x? Check your answer.

10. The equation is solved below. Write a justification for each step.

$$10 = 15x$$

$$\frac{10}{15} = \frac{15x}{15}$$

$$\frac{2}{3} = x$$

11. Check your answer.

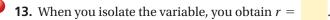


Problem 4 Solving an Equation Using Multiplication

Got It? What is the solution of $19 = \frac{r}{3}$?

12. Underline the correct word or number to complete the sentence.

To isolate the variable, you should multiply / divide each side of the equation by 3 / 19.





Problem 5 Solving an Equation Using Reciprocals

Got lt? What is the solution of $12 = \frac{3}{4}x$? Check your answer.

14. To solve the equation, divide / multiply both sides of the equation by the reciprocal of $\frac{3}{4}$.

15. Multiple Choice Choose the reciprocal of $\frac{3}{4}$.

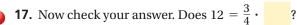






$$\bigcirc$$
 4

16. Use the reciprocal of $\frac{3}{4}$ to solve $12 = \frac{3}{4}x$ for x.





Problem 6 Using a One-Step Equation as a Model

Got lt? An online DVD rental company offers gift certificates that you can use to purchase rental plans. You have a gift certificate for \$30. The plan you select costs \$5 per month. How many months can you purchase with the gift certificate?

18. Complete the model to solve the problem.

Relate	cost per month	times	number of months	is	amount of the gift certificate	
Define	Let $m =$					
Write	\$			=	\$	

19. Solve the equation to find the number of months you can purchase.

