

EXPRESSIONS AND EQUATIONS

Name _____
Date _____

WARM UP #1

Lesson 3: Solving Equations with Variables on Both Sides

Skill: Solving Multi-Step Equations

1) $-8x + 4x - 6x = 60$

2) $-2(8x + 3) = 58$

SOLVING EQUATIONS WORD PROBLEMS

Lesson
4

Suggested Class Time: 2 Days

The Big Idea

This is a complete lesson and practice for Solving Equations Word Problems. Write and solve equations to find missing information.

Standards

CCSS
7.EE.3: Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of a calculation. Use estimation to check computation and estimation strategies.

Name _____
Date _____

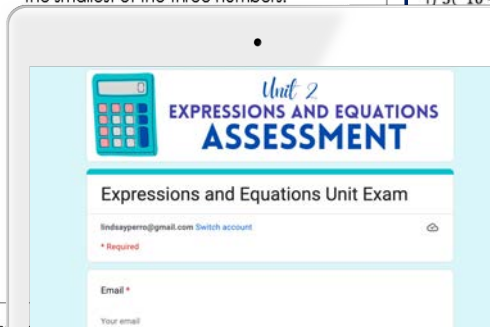
EXIT TICKET #1

Lesson 4: Solving Equations Word Problems

Skill: Solving Equations Word Problems

1) Harry spent half the money in his account and then deposited \$45 more. He now has \$127. Write and solve an equation to determine how much money Harry had to begin with.

2) The sum of three consecutive numbers is 84. Write and solve an equation to determine the smallest of the three numbers.



Name _____ Date _____

NOTES

SOLVING MULTI-STEP EQUATIONS

COMBINING LIKE TERMS REVIEW:

- Like terms have the same variable and power.
- Examples of like terms:
- Examples of un-like terms:

Identify the like terms below. Then, combine them to simplify the expression.

SOLVING TWO-STEP EQUATION

Directions: Solve each equation. Show your work.

1) $-2x - 20 = 14$

2) $15x + 5 = -40$

4) $\frac{x}{2} - 10 = -5$

Name _____ Date _____

QUIZ

SOLVING EQUATIONS

Directions: Solve each equation. Show your work.

1) $\frac{a}{2} + 6 = -5$

2) $19 + \frac{r}{12} = 18$

3) $-4(1 - 7n) + 6 = -194$

Name _____ Date _____

ASSESSMENT

EXPRESSIONS AND EQUATIONS

For #1 – 4: Simplify each expression. Show your work.

1) $5(-10 - 14x) - 16x$

- A. $54x - 50$
- B. $-30x - 50$
- C. $-86x - 50$
- D. $-136x$

2) $15 - 12(-7x - 6)$

- A. $84x + 87$
- B. $99x + 72$
- C. $-84x - 57$
- D. $-74x - 57$

3) $-3(10x + 1)$

- A. 24
- B. $120x + 24$
- C. $-120x + 30$
- D. $-120x + 24$

4) $-2(x + 9)$

Solve each equation. Show your work.

5) 40

- A. $x = -128$
- B. Infinite

6) 3

unit
2

EXPRESSIONS AND EQUATIONS

Vocabulary

- Coefficient
- Constant
- Distributive Property
- Equation
- Expression
- Infinite Solutions
- No Solutions
- One Solution
- Variable

Objectives

- Solve linear equations in one variable.
- Give examples of equations with one solution, no solutions and infinite solutions.
- Solve linear equations with rational number coefficients.
- Solve linear equations that require the use of the distributive property and combining like terms.

Standards

CCSS

- 6.EE.6
- 6.EE.7
- 7.EE.3
- 7.EE.4
- 7.EE.4a
- 8.EE.7
- 8.EE.7a
- 8.EE.7b

TEKS

- 8.8(A)
- 8.8(B)
- 8.8(C)

EXPRESSIONS AND EQUATIONS

Lesson	Resources
Unit Prep pages (3 – 10)	• Vocabulary Page • Warm Up Page • Unit Pre-Assessment
1) Solving Equations Review pages (11 – 16)	• One Warm Up • Rational Number Operations Review • Solving Two-Step Equations Review • Solving Two-Step Equations Practice Worksheet • One Exit Ticket
2) Solving Multi-Step Equations pages (17 – 25)	• One Warm-Up • Solving Multi-Step Equations Notes • Solving Multi-Step Equations Fold & Flip Notes • Solving Multi-Step Equations Practice Worksheet • One Exit Ticket
3) Solving Equations with Variables on Both Sides pages (26 – 39)	• Two Warm-Ups • Solving Equations with Variables on Both Sides Notes • Solving Equations with Variables on Both Sides Fold & Flip Notes • Number of Solutions Fold & Flip Notes • Identifying the Number of Solutions Practice Worksheet • Equations with Variables on Both Sides Practice Worksheet • Solving Multi-Step Equations Extra Practice Worksheet • Two Exit Tickets
4) Equation Word Problems pages (40 – 46)	• Two Warm-Ups • Solving Equation Word Problems Notes • Solving Equation Word Problems Practice Worksheets • Solving Equations Quiz • Two Exit Tickets
End of Unit pages (47 – 54)	• Review Sheet • Unit Post-Assessment

TEACHER RESOURCES

8TH GRADE MATH CURRICULUM : UNIT 2

EXPRESSIONS AND EQUATIONS

DAY 1 TOPIC: Unit Prep RESOURCES: - Unit 1 Review Activity (teacher choice) - Unit 2 Pre-Assessment	DAY 2 TOPIC: Solving Equations Review RESOURCES: - L1 Warm Up 1 - Rational Number Operations Review (Optional) - Solving Two-Step Equations Review Notes - Solving Two-Step Equations Review Practice - Exit Ticket 1	DAY 3 TOPIC: Solving Multi-Step Equations Review RESOURCES: - L2 Warm Up 1 - Solving Multi-Step Equations Review Notes (traditional and/or fold and flip) - Solving Multi-Step Equations Practice - Exit Ticket 1
DAY 4 TOPIC: Solving Equations with Variables on Both Sides RESOURCES: - L3 Warm Up 1 - Solving Equations with Variables on Both Sides	DAY 5 TOPIC: Solving Equations with Variables on Both Sides RESOURCES: - L3 Warm Up 2 - Equations with Variables on Both Sides	DAY 6 TOPIC: Solving Equations Word Problems RESOURCES: L4 Warm Up 1

8TH GRADE MATH CURRICULUM - UNIT 2

EXPRESSIONS AND EQUATIONS

Name	Pre-Assessment	Assessments	Notes

SOLVING UNIT 2 LESSON 3

Student Tracking

UNIT 2 LESSON 3

SOLVING EQUATIONS WITH VARIABLES ON BOTH SIDES

The collage features several educational materials:

- A **Student Tracking** sheet with columns for:
 - Name
 - Warm Up #1
 - Warm Up #2
 - Solving Equations with Variables on Both Sides Notes
 - Number of Solutions Practice
- A large sign for **Unit 2 Expressions and Equations** with the unit number in a circle.
- A smaller circular sign for **Unit 2**.
- A partially visible sign at the bottom for **Unit 2**.

Student Tracking

8TH GRADE MATH CURRICULUM EXPRESSION AND EQUATION

Unit 2

EXPRESSIONS AND

Unit 2

EXPRESSIONS AND EQUATIONS

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EXPRESSIONS AND EQUATIONS

LESSON PLAN

Standard(s):

Student Materials:

Date(s):

- ☐ Calculator
- ☐ Colored pen
- ☐ Ruler

- ☐ Scissors
- ☐ Glue
- ☐ Protractor

- ☐ Compass
- ☐ Graph paper
- ☐ Dry erase

Lesson Progression:

EXPRESSIONS AND EQUATIONS

Coefficient	
Constant	
Distributive Property	
Equation	
Expression	
Infinite Solutions	
No Solutions	

Name _____

Week of _____ to _____

Date: _____

Date: _____

Date: _____

WEEKLY WARM UP SKILLS

Name _____

Week of _____ to _____

Date:

Date:

Date:

SOLVING EQUATIONS REVIEW

lesso
1

Suggested Class Time: 1 Day

The Big Idea

- This is a complete lesson and practice for Solving Equations. This is a review unit. Students will:
- Review operations with rational numbers
 - Work with integers, fractions, and decimals in equations
 - Review inverse operations and solving two-step equations
- standards**
- CSS**

Standards

- [illegible]

TEKS

- 8.8(A): Write one-variable equations or inequalities with variables on both sides that represent problems using rational number coefficients and constants.
- 8.8(B): Write a corresponding real-world problem when given a one-variable equation or inequality with variables on both sides of the equal sign using rational number coefficients and constants.
- 8.8(C): Model and solve one-variable equations with variables on both sides of the equal sign.

WARM UPS AND EXIT TICKETS

Lesson 1: Solving Equations
Skill: Converting Fractions to Decimals

1) Convert $\frac{11}{3}$ to a decimal.

2) Convert $\frac{7}{9}$ to a decimal.

3) Convert $\frac{2}{3}$ to a decimal.

4) Convert $\frac{1}{1}$ to a decimal.

WARM UP #1

Name _____
Date _____

Lesson 1: Solving Equations Review
Skill: Solving Two-Step Equations

1) $9(b - 9) = 99$

2) $\frac{10+x}{13} = 2$

3) $-2 = \frac{3+v}{1}$

4) $-8(x - 10) = 120$

EXIT TICKET

Lesson 2: Solving Multi-Step Equations
Skill: Combining Like Terms and Distributive Property

1) Simplify: $-5 - 8x + 2x + -6$

2) Simplify: $-10p - 3$

WARM UP #1

Name _____
Date _____

Lesson 3: Solving Equations with Variables on Both Sides
Skill: Solving Multi-Step Equations

1) $-6(2x + 3) - 7 = -97$

2) $4(1 - 4n) = -124$

EXIT TICKET

WARM UP #1

Name _____
Date _____

Lesson 4: Solving Equations Word Problems
Skill: Solving Multi-Step Equations

1) $-2(3x + 9) = 30\frac{1}{2}$

2) $13 - (x - 9) = 15$

3) $11 + 4(2x + 1) = 63$

EXIT TICKET #1

Lesson 4: Solving Equations Word Problems
Skill: Solving Equations Word Problems

1) Harry spent half the money in his account and then deposited \$45 more. He now has \$127. Write and solve an equation to determine how much money Harry had to begin with.

2) The sum of three consecutive numbers is 12. Write and solve an equation to determine the smallest of the three numbers.

EXIT TICKET

NOTES

Name _____ Date _____ **NOTES**

REAL NUM

Objective: Discuss the different types of real numbers.

What are they?	Irrational Numbers	Rational Numbers	Integers

Name _____ Date _____ **NOTES**

SQUARED AND CUBED ROOTS

Objective: Evaluate square roots of perfect squares and cubed roots of perfect cubes.

Vocabulary:

Square Root	
Perfect Squares	
Cube Root	
Perfect Cube	
Radicand	

Name _____ Date _____ **NOTES**

ADDING & SUBTRACTING MONOMIALS

Vocabulary:

Term	Definition	Examples
base		
exponent		
monomial		

Name _____ Date _____ **NOTES**

SCIENTIFIC NOTATION

What is Scientific Notation?

Name _____ Date _____ **NOTES**

SCIENTIFIC NOTATION OPERATIONS

Adding and Subtracting:

1. Raise all powers of 10 to the same exponent by moving the decimal point to slide up and down powers of 10. If you are increasing the exponent, move the decimal _____. Move _____ if you are decreasing the exponent.
2. Add or subtract the constants.

Practice: Simplify each expression.

1) $(1.04 \times 10^4) + (5.6 \times 10^2)$

2) $(8.21 \times 10^6) - (1.9 \times 10^3)$

3) $(4.3 \times 10^{-10}) - (1.22 \times 10^{-8})$

4) $(9.82 \times 10^{12}) + (1.3 \times 10^{15})$

Multiplying & Dividing:

1. Split the expressions into constants and powers of 10

Example:

$(6.4 \times 10^5) + (3.2 \times 10^8)$

$(0.0064 \times 10^8) + (3.2 \times 10^8)$

$(0.0064 + 3.2) \times 10^8$

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Solving Multi-Step Equations

DISTRIBUTIVE PROPERTY

COMBINE LIKE TERMS

MOVE THE VARIABLES TO ONE SIDE

MOVE THE CONSTANTS TO ONE SIDE

SOLVE FOR THE VARIABLE

NUMBER OF SOLUTIONS TO EQUATIONS

ONE SOLUTION

NO SOLUTION

INFINITE SOLUTIONS

Solving Multi-Step Equations



COMBINING LIKE TERMS

DISTRIBUTIVE PROPERTY

MULTI-STEP EQUATIONS

PRACTICE WORKSHEETS

Name _____ Date _____

SOLVING TWO-STEP EQUATIONS

Directions: Solve each equation. Show your work.

1) $-2x - 20 = 14$

2) $15x + 5 = -40$

3) $8 - \frac{1}{4}x = 5$

4) $\frac{x}{2} - 10 = -5$

5) $0.75x + 8 = -1$

6) $1.6x - 2 = 1$

Name _____ Date _____

SOLVING MULTI-STEP EQUATIONS

Directions: Solve each equation. Show your work.

1) $5x + 2 + 4x = -7$

2) $1.75x + 4.5x = -18.75$

3) $-x + 2x + 5 - 8x = -30$

4) $-2x + 8 - 2x = -12$

5) $3(x - 2) + x = 22$

Name _____ Date _____

EQUATIONS WITH VARIABLES ON BOTH SIDES

Directions: Solve each equation. Find your answer in one of the three answer boxes. Show Your Check

#		A	B	C
1	$-16 = -4 - 6x$	2	-10	-2
2	$7n - 4n - 6 = 12$	6	2	7
3	$\frac{1}{2}(x - 2) = 5$	12	3.5	4.5

Name _____ Date _____

EQUATIONS WITH VARIABLES ON BOTH SIDES

Directions: Solve each equation.

1) $6x + 7 = 13 + 7x$

2) $3 - 4x = 18 + x$

3) $x - 3x = 14 - 4x$

4) $3x - 5 = -2(1 - 7x)$

5) $3(x + 5) = 2(-6 - x) - 2x$

Name _____ Date _____

SOLVING EQUATIONS WORD PROBLEMS

Directions: Read each problem carefully. Write and solve an equation to find the solution.

1) Nina makes \$12 per hour at her job. She also earns commission. Last week she earned \$78 in commission and made a total of \$444. Write and solve an equation to determine how many hours Nina worked last week.

2) Before unlimited talk and text, Bonnie used to pay \$40 per month for her cell phone. Now she pays \$30 per month for each text message she sent. One month, Bonnie had a \$76.50 cell phone bill. Write and solve an equation to determine how many text messages Bonnie sent that month.

3) The perimeter of a rectangle is 66 inches. The length is $2x + 6$ inches, and the width is x inches. Write and solve an equation to find the value of x .

Name _____ Date _____

IDENTIFYING NUMBER OF SOLUTIONS

Directions: Identify the number of solutions for each equation. Provide proof.

1) $6x + 7 = 6x - 7$

2) $3 - 4x = 12 + 4x$

3) $3x + 4 - 3x = 4$

4) $8x - 5 + 8x = -5$

ASSESSMENTS - PRINT AND DIGITAL

Name _____ Date _____ Class _____

PRE-ASSESSMENT

For #1 - 3: Simplify each expression. Show your work.

1) $-3x - 5 + 6x - 10 - x$ 2) $-8(3x + 2) - 4x$ 3) $2x +$

Name _____ Date _____

QUIZ

SOLVING EQUATIONS

Directions: Solve each equation. Show your work.

1) $\frac{a}{2} + 6 = -5$ 2) $19 + \frac{r}{12} = 18$ 3) $-4(1 - 7n) + 6 = -194$

Name _____ Date _____

ASSESSMENT

EXPRESSIONS AND EQUATIONS

For #1 - 4: Simplify each expression. Show your work.

1) $5(-10 - 14x) - 16x$ 2) $15 - 12(-7x - 6)$

Name _____ Date _____

ASSESSMENT

EXPRESSIONS AND EQUATIONS

For #13 - 16: Is the given number a solution to the equation? Provide proof.

13) $x - 16 - 3x = 0$; 8
A. Solution
B. Not a Solution

14) $\frac{2x}{5} + 4 = -12$; -40
A. Solution
B. Not a Solution

15) $x + 30 = 4x - 6$; 12
A. Solution
B. Not a Solution

16) $-6 + 2x = 9 - 3x$; -3
A. Solution
B. Not a Solution

Name _____ Date _____

ASSESSMENT

EXPRESSIONS AND EQUATIONS

Constructed Response

23) The length of a rectangle is 6 feet more than twice the width. The length is 24 feet.

Part A: Find the width. _____

Part B: Use what you know about writing and solving equations to explain how you found your answer. Use words, numbers and/or symbols in your explanation.

problem carefully. Write and solve an equation.

18) A jet ski rental company charges a \$100 rental fee, plus \$20 per hour. Write and solve an equation to determine how many hours you can rent the jet ski for if you have a budget of \$175.

A. 38 days
B. 26 days
C. 5 days
D. 8 days

A. 8.75 hours
B. 5.75 hours
C. 3.75 hours
D. 6.75 hours

24) The sum of three consecutive integers is 279.

Part A: Identify all three integers. _____ & _____

Part B: Use what you know about writing and solving equations to explain how you found your answer. Use words, numbers and/or symbols in your explanation.

25) In a triangle, Angle B is twice Angle A.

Part A: Find the measure of Angle A.

Part B: Use what you know about writing and solving equations to explain how you found your answer. Use words, numbers and/or symbols in your explanation.



Expressions and Equations Unit Exam

lindsayperro@gmail.com [Switch account](#)

* Required

Email *

Your email

Simplify

1) *

$5(-10 - 14x) - 16x$



UNIT 2 QUIZ

SOLVING EQUATIONS

Solving Equations Quiz

Solve each equation. Type only the numerical portion of your answer. (Do not type x = or any words or symbols).

lindsayperro@gmail.com [Switch account](#)

* Required

Email *

Your email

1) *

$$\frac{a}{2} + 6 = -5$$

Your answer

2) *