

lesson twenty-two - student resource sheet

Lesson Objective: Solve equations with variables on both sides.

Vocabulary Box

constant — a value that does not change. Examples: 4, $-6\frac{2}{3}$, π .

combining like terms — Adding or subtracting two or more terms that contain exactly the same variable, or adding or subtracting two or more constant terms. Examples: $5x + 3x = 8x$ and $(2w - 7) + (w - 4) = 3w - 11$; however, $4m + 5n$ cannot be simplified because the two terms are not the same.



Guided Practice

Directions: Complete the following practice problems. Your teacher will review the answers. Make sure that you show all your work, and remember to check your answers!

I. Solve each equation. You may work with a partner.

1. $2a + 17 = 4a + 9$

2. $5c - 21 = c - 37$

3. $-8w + 140 = 12w$

II. Work independently to solve each equation.

1. $12x - 42 = 5x + 77$

2. $-9y - 15 = 6y + 75$



Summary/Closure

A. Vocabulary Words

Directions: In the following list of numbers, circle the terms that are constants.

-5 $2x$ $\frac{2}{3}$ 1 $-3y$ 0 π x^2 7.75 $7.7n$

Directions: Draw lines connecting groups of like terms. Then combine like terms to make a number sentence.

$6a$	$-7b$
10	$5c$
$3b$	$-a$
$4c$	-4

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B. Summarize What We Learned Today

Directions: Write three sample equations with variables on both sides and solve them. Remember to check your answers! Then write a few sentences explaining how to solve these equations. You will use this explanation as a personal reminder.

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Lesson Objective: Solve equations with variables on both sides.

Vocabulary Box

constant — A value that does not change. Examples: 4, $-6\frac{2}{3}$, π .

combining like terms — Adding or subtracting two or more terms that contain exactly the same variable, or adding or subtracting two or more constant terms. Examples: $5x + 3x = 8x$ and $(2w - 7) + (w - 4) = 3w - 11$; however, $4m + 5n$ cannot be simplified because the two terms are not the same.



Independent Practice

Directions: Complete the following practice problems on your own. Your teacher will review the answers. Make sure that you show all of your work and check your answers.

1. $11z + 25 = 3z + 51$

2. $-9y + 162 = 3y + 138$

3. $6x - 54 = -3x$

4. $52w - 28 = -23w - 253$

5. $5 + 9v = 53 + v$

6. $-7u = -5u + 31$

7. $r = -51 - 2r$

8. $-20p - 55 = -40p - 75$



Directions: Solve each equation and check the answer.

1. $3n + 7n - 5 = 6 + 2n + 13$

2. $\frac{1}{4}m - \frac{2}{3} = -\frac{3}{8}m - 2$

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Problem Solving

Directions: Solve the first word problem by following the steps for two different methods. First, make a table. Then, write an equation. Solve the second word problem by choosing one of the methods.

Problem 1: Very cold, dry air was blowing into Greenville and Red Bluff. At 7:00 pm, the temperature in Greenville was 57°F . The temperature fell at a constant rate of 3°F for the next 10 hours. Also at 7:00 pm, the temperature in Red Bluff was 71°F and fell at a constant rate of 5°F for the next 10 hours. At what time were the two towns' temperatures the same?

Method 1: Make a table.

Extend the following table until you find the answer.

Time	Greenville Temperature $^{\circ}\text{F}$	Red Bluff Temperature $^{\circ}\text{F}$
7:00 pm	57	71
8:00 pm	54	

Method 2: Write an equation.

Let h equal the number of hours since 7:00 pm.

An expression that represents Greenville's temperature during the 10-hour period is $57 - 3h$.

Write an expression that represents Red Bluff's temperature. _____

Write an equation that shows that these two temperatures will be equal after a certain number of hours. _____

Solve this equation and answer the problem. Remember to check your answer to be sure it makes sense.

Choose your method to solve the following problem.

Problem 2: Carlina and Indira both just started new jobs. Carlina's starting salary is \$35,000 per year, and she will earn a raise of \$1,750 after every year. Indira's starting salary is \$29,000 per year, and she will earn a raise of \$2,500 after every year. After how many years will the two women's salaries be the same?

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Directions: Solve the equations and check your answers.

1. $8x + 39 = 5x$

2. $4n - 37 = 12n - 25$

3. $9 - 3y = -7y - 12$

lesson twenty-four - student resource sheet

Lesson Objective: Predict outcomes using probability.

Vocabulary Box

probability — For an experiment, the total number of successful events divided by the total number of possible events. Example: The probability of flipping heads on one try, or event, using a quarter is $\frac{1}{2}$.

independent events — Two events in which the outcome of the second is not affected by the outcome of the first. Example: The outcome of flipping heads on a quarter does not affect the outcome of flipping heads on a penny.

dependent events — Two events in which the outcome of the second is influenced by the outcome of the first. Example: In a drawer containing two pens and three pencils, the probability of taking out a pen at random is $\frac{2}{5}$, but once that pen is removed, the probability of taking out another pen at random changes to $\frac{1}{4}$.



Guided Practice

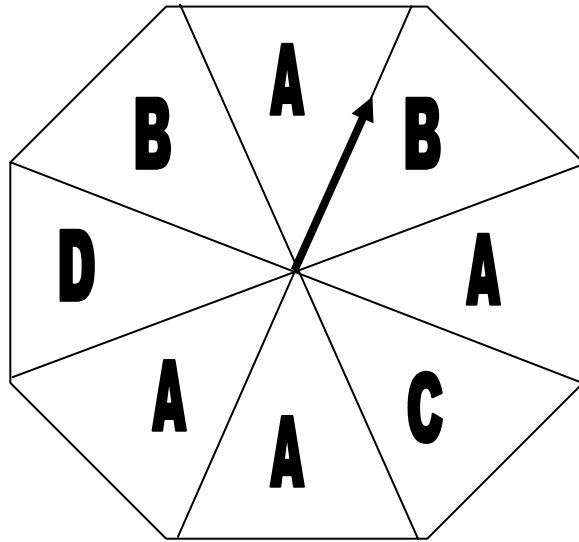
Directions: Complete the following practice problems with your partner. Your teacher will review the answers. Make sure that you show all your work.

- I. Find the probability of each situation. Write each answer as a fraction in simplest form.
 1. Tossing a two-color counter and having it land with its yellow side facing up.
 2. Spinning the arrow on a four-color spinner and having it land in the yellow section.

3. Tossing a number cube and having it land with a multiple of 3 facing up.
4. Tossing a number icosahedron (20-faced playing piece, numbered 1 through 20) and having it land with a two-digit number facing up.
5. Tossing a two-color counter and having it land with its red side facing up, followed by tossing a number cube and having it land with a number less than 5 facing up.
6. Spinning the arrow on a four-color spinner three times and having it land in the blue section all three times.

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- II. Use the following spinner diagram to find each probability. Write each answer as a fraction in simplest form, as a decimal, and as a percent. Please work independently.



1. Spinning the arrow and having it land on an *A*.

fraction:

decimal:

percent:

2. Spinning the arrow and having it land on a *B*.

fraction:

decimal:

percent:



Summary/Closure

A. Vocabulary Words

Directions: Answer the following questions about today's vocabulary words.

1. Write the formula for probability as a fraction in words.
2. Explain the difference between independent events and dependent events.

B. Summarize What We Learned Today

Directions: Write and solve two examples of simple probability and one example of compound, independent probability. Then write a few sentences explaining probability. You will use this explanation as a personal reminder.