

lesson twenty-five - student resource sheet

Lesson Objective: Solve percent equations. (6% of 30 equals what number? 1.8 is what percent of 30? 1.8 is 6% of what number)

Vocabulary Box

percent — A ratio that compares a number to 100. Example: $50\% = \frac{50}{100}$.



Independent Practice

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

I. Set up a proportion for each problem below. You do not need to solve the proportions.

1. 32% of what number is 9?

2. 15 is what percent of 75?

3. What is 90% of 70?

II. Solve each problem, using the percent proportion. Then check each answer by finding the cross products.

1. What is 50% of 60?

2. 12 is what percent of 36?

3. 54 is 60% of what number?

III. Match each percent problem with the proportion that you would use to solve it.

1. _____ 20% of what number is 60?

a. $\frac{20}{60} = \frac{n}{100}$

2. _____ 20 is what percent of 60?

b. $\frac{n}{20} = \frac{60}{100}$

3. _____ 60% of 20 is what number?

c. $\frac{60}{n} = \frac{20}{100}$

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1. Write a proportion that fits all three situations.

75% of what number is 60?

45 is what percent of 60?

45 is 75% of what number?

2. Solve using a proportion.

20% of what number equals 7.2?

Problem Solving

You have been hired to work at the hottest clothing store in the mall, Cool Clothes. You have several items that need to be put back on the sales racks, but your boss is not sure where they should go. Use your knowledge of the percent proportion and the information given on the tags to match the items with the proper racks.

ITEM	Jeans	T-Shirt	Socks	Shoes	Hat
ORIGINAL PRICE	\$50	\$12	\$4	\$60	\$15
SALE PRICE	\$25	\$9	\$1	\$45	\$7.50

First, write a proportion to find out what percent of the original price each sale price represents. Then subtract that number from 100 to find out what percent was taken off the original price.

Indicate which items belong on which racks by writing the item name in the appropriate space in the chart below.

The signs on the racks read:

RACK SIGNS	Clearance: 25% off the original price	Hurry! 50% off the original price!	Great deals. 75% off the original price
ITEMS			

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1. Write 50 percent as a ratio.

 2. 17 is what percent of 85?

 3. 12 is 30% of what number?

lesson twenty-six - student resource sheet

Lesson Objective: Multiply integers with like and unlike signs.

Vocabulary Box

integers — The set of numbers containing zero, the natural numbers, and all the negatives of the natural numbers. Examples: -4 , 0 , 28 .

negative integer — An integer that is less than zero. Examples: -1 , -17 , -78 .

positive integer — An integer that is greater than zero. Examples: 5 , 8 , 11 .



Guided Practice

MULTIPLICATION RULES

SAME SIGNS _____

DIFFERENT SIGNS _____

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

I. Work with a partner to multiply each set of integers and check each answer.

1. $-5 \times 7 =$ _____

2. $-9 \times -10 =$ _____

3. $8 \times -12 =$ _____

4. $-4 \times 3 \times -2 =$ _____

II. Multiply each set of integers and check your answers. Please work on your own.

1. $-8 \times -13 \times -6 =$ _____

2. $-5 \times -12 \times 10 \times -17 =$ _____

3. $-18 \times -19 \times 38 =$ _____

4. $45 \times 32 \times -5 =$ _____



Summary/Closure

A. Vocabulary Words

Classify the integers and problems below by writing them under the correct heading.

-4 , 18 , -2×3 , -15 , $-7 \times -10 \times 3$

POSITIVE INTEGER	NEGATIVE INTEGER

B. Summarize What We Learned Today

Explain, in your own words, how to multiply more than two integers with different signs. Then write and solve an example problem in which you multiply three integers, two of which have different signs.

lesson twenty-seven - student resource sheet

Lesson Objective: Multiply integers with like and unlike signs.

Vocabulary Box

integers — The set of numbers containing zero, the natural numbers, and all the negatives of the natural numbers. Examples: -4 , 0 , 28 .

negative integer — An integer that is less than zero. Examples: -1 , -17 , -78 .

positive integer — An integer that is greater than zero. Examples: 5 , 8 , 11 .



Independent Practice

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

I. Tell whether the product will be positive or negative.

1. -6×-9 _____

2. -2×18 _____

3. $-3 \times -2 \times 7$ _____

II. Calculate each product. Be sure to show your work and check your answers.

1. $-57 \times -34 =$ _____

2. $-9 \times 16 =$ _____

3. $31 \times -17 =$ _____

III. Calculate each product. Be sure to show your work and check your answers.

1. $-6 \times -4 \times 3 \times -15 = \underline{\hspace{2cm}}$

2. $-7 \times 8 \times -2 = \underline{\hspace{2cm}}$

3. $-9 \times -11 \times -45 = \underline{\hspace{2cm}}$

BONUS?

Directions: Solve each equation.

1. $\frac{a}{-7} = -16$

2. $\frac{b}{12} = -83$

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Problem Solving

The population of a certain town has been decreasing by an average of 31 people per year. Determine how much the population will decline over the next 10 years.

First, write and solve a multiplication problem for each year of the decline.

Year 2: $-31 \times \underline{\quad} = -62$

Year 3: $\underline{\hspace{2cm}}$

Year 4: $\underline{\hspace{2cm}}$

Year 5: $\underline{\hspace{2cm}}$

Year 6: $\underline{\hspace{2cm}}$

Year 7: $\underline{\hspace{2cm}}$

Year 8: $\underline{\hspace{2cm}}$

Year 9: $\underline{\hspace{2cm}}$

Year 10: $\underline{\hspace{2cm}}$

Then, fill in the chart below with your answers.

Year	1	2	3	4	5	6	7	8	9	10
Decrease	-31	-62								

1. If the town now has a population of 35,328 people, what will the population be after five years? Write your final answer in a complete sentence.
2. What will be the population of the town after 10 years have passed? Write your final answer in a complete sentence.



1. $-5 \times -12 =$ _____

2. $-34 \times 16 =$ _____

3. In the problem $8 \times -18 \times 34$, the answer will have a _____ sign.