Math Lessons for Alaska State Standards

Grade 5

Mastery Packet 13 (Review)

Lesson 2

Lesson Time - approximately 60 minutes

Teacher Materials
see "Sales! Sales! Sales!" for materials

Student Materials
student form for this lesson, calculators, plenty of play money for students to work with

Vocabulary

REVIEW PERFORMANCE STANDARD

A2.2.6 Read, write, and use money notation, determining possible combinations of coins and bills to equal given amounts; count back change for any given situation.

A1.2.7 Students can demonstrate the commutative and identity properties of multiplication.

(Bold area above is the performance standard or standard area being addressed in the lessons.)

Skill:

- **Math life skills for junior consumers**

Guided Practice

Sales! Sales! Sales!

Sale signs catch the eyes of junior shoppers, too! Sale discounts are usually written in percents, such as 10% off, or fractional form, such as 1/3 off. Using calculators and their lists from the "Yearning To Earn" activity, have students determine the sale prices of their items with discounts of 10%, 15%, 20%, 25%, and 50% (see the calculator steps shown in the box). To help student, copy the calculator steps on a chart and display it for easy reference.

Your young consumers will also need to know how to compute discounts expressed as fractions, such as 1/2, 1/3, and 1/4 off. A 1/2-off discount can quickly be found by dividing the regular price by two. To find a 1/3 discount, divide the regular price by three and subtract the answer from the regular price. Follow the same procedure with a 1/4-off discount. For practice with fractional discounts, invite your students to spend "A Day at Vinnie's Video" by completing the student practice. See if any sharp-eyed students notice the relationship of 1/2 to 50% and 1/4 to 25%.

Percents Off

Steps	Examples
1. Enter the regular price.	**59.99**
2. Press – (subtract).	**-**
3. Enter amount of discount.	**20**
4. Enter %	**%**
5. Round to the nearest cent.	**47.992 = $47.99**

NOTE: Start collecting coupons for foods, beverages, cleaning supplies, etc as well as adds for lesson 3. You will need the regular price of each item that you save a coupon for.

Student Practice

Name _____ Date _____

A Day Vinnie's Video

Directions: Vinnie's Video is once again having a sale on its best-selling videos. Use the problem-solving tips in the box and the information on the video packages to help you solve the problems below. Show your work on another sheet of paper. Write your answers in blanks.

- To find 1/3 off, divide the regular price by 3. Subtract the answer from the regular price.
- To find 1/4, divide the regular price by 4. Subtract the answer from the regular price.

1. What would be the sale price on a copy of *Three Babies and a Man*? _____

2. What would be the sale price on a copy of *Jane Fondue's Workout*? _____

3. How much money would you save if you bought *Training Your Tarantula*? _____

4. How much money would you save if you bought *Kremlins*? _____ What would be the sale price? _____

5. How much money would you save if you bought a copy of *A Bad Dream On Maple Avenue Part 17*? _____ What would be the sale price? _____

6. What would be the savings on a copy of *Preteen Ninja Mutant Armadillos*? _____ What would be the sale price? _____

7. What would be the total sales price if you bought a copy of *Preteen Ninja Mutant Armadillos*, *A Bad Dream On Maple Avenue Part 17,* and *Jane Fondue's Workout*? _____

8. What would be the cost of *Training your Tarantula* if you also had a coupon for an additional 1/10 off? _____

9. What would be your total savings if you bought two copies of *Jane Fondue's Workout*? _____

10. What is the total price if you bought one of each videos? _____

Jane Fondue's Workout	Training Your Tarantula	Three Babies and a Man	Preteen Ninja Mutant Armadillos	Kremlins	A Bad Dream on Maple Avenue
1/3 OFF Reg. $19.89	1/2 OFF Reg. $17.75	1/6 OFF Reg. $38.49	1/4 OFF Reg. $27.99	1/2 OFF Reg. $38.25	1/3 OFF Reg. $27.89

Direct Instruction

Teacher says: Earlier we learned the following multiplication properties:

PROPERTY OF ONE:	ZERO PROPERTY:	ORDER PROPERTY:
When one of the factors is 1, the product is the other factor.	When one of the factors is zero, the product is zero.	Two numbers can be multiplied in any order. The product is the same.
1 x 5 = 5	0 x 5 = 0	2 x 5 = 10 or 5 x 2 = 10

The Property of One is sometimes referred to as the Multiplication Identity Property.

MULTIPLICATION IDENTITY PROPERTY:
The product of any number and one is that number. For example, 5 x 1= 5.

The Order Property is sometimes referred to as the Commutative Property.

COMMUTATIVE PROPERTY:
When two numbers are multiplied together, the product is the same regardless of the order of the multiplicands. For example 4 x 2 = 2 x 4.

NOTE: Have student volunteers give example math sentences to match each property.

Teacher says: It is also important to know the order in which to do math operations when you have a variety in a math sentence. For example:

Order of Operations

Please Excuse My Dear Aunt Sally

Parentheses (Innermost, first)
Exponents (Powers or roots)
Multiply or **D**ivide (from *LEFT-to-RIGHT*)
Add or **S**ubtract (from *LEFT-to-RIGHT*)

When you have more than one operation in a math problem, you must solve it following the correct ORDER OF OPERATIONS:

- First, copy the problem EXACTLY.
- Then go through each level of operations. (Please Excuse My Dear Aunt Sally.)
- Do the operations within each level from left-to-right.
- Write the answer directly below the operation sign.
- Bring down the other numbers (be careful not to *re-use* any).
- Continue until all operations are completed.

Teacher says: We are going to complete the *How Much s that CD in the Window* together to practice properties of multiplication and order of operations.

Guided Practice

Name _____ Date _____

PROPERTY OF ONE:	ZERO PROPERTY:	ORDER PROPERTY:
When one of the factors is 1, the product is the other factor. 1 x 5 = 5	When one of the factors is zero, the product is zero. 0 x 5 = 0	Two numbers can be multiplied in any order. The product is the same. 2 x 5 = 10 or 5 x 2 = 10

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- Bring down the other numbers (be careful not to *re-use* any).
- Continue until all operations are completed.

Guided Practice

Name _____ Date _____

How Much Is That CD in the Window?

Directions: Solving math problems requires you to make decisions. Sometimes deciding what to do is the hardest part. Then you've got to make sure you do the steps in the right order.

The first six problems below require one step each. Problems 7-12 require two steps each. In these problems, shapes take the place of numbers. Use the shapes and the four math signs (+, -, x, and ÷) to write a number sentence for each problem. The first one in each set of problems is done for you.

One-step problems:

1. Debra has ■ to by a scarf that costs▲. How much change will she receive? ■ - ▲

2. Kevin's ticket for a play costs■. His dad's costs▲. What was the total cost of the two tickets?

_____

3. A ▲–pack of soda costs●. How much would one soda cost? _____

4. Each soda contains ▲ ounces. How many ounces would be in a pack of ● sodas? _____

5. Dana bought a CD on sale for■. The regular price was▲. How much money did Dana save?

_____

6. For a party, Julie bought ▲ pizzas that were cut into ● slices each. How money slices of pizza did Julie have? _____

Two-step problems:

7. Shelly purchased a box of cake mix for ● and a package of icing for▲. What was her total cost if she used a coupon for ■ off? (● + ▲) - ■

8. Freida bought a chain for her bike that cost ▲ and a new helmet for●. How much change did she get from■?

9. In one week, Lou makes ● mowing lawns. He worked ■ weeks this month. He spent ▲ and saved the rest. How much money did Lou save?

10. Jenny's allowance is▲. She spent ●on a new set of markers. The following week she received a check for ■ as a birthday gift from her uncle Charlie. How much money does Jenny have now?

_____

11. Bart worked for ● hours, earning ▲ per hour. He spent ■ on a new skateboard. How much money did Bart have left? _____

12. ● youngsters earned a total of ■ painting the picket fence in front of Mrs. Thurman's house. Each child decided to give ▲ of his or her earnings to charity. How much did each child have left over after contributing to charity?

_____

Closing

Discuss the following with your students:

- Did they use any multiplication properties to complete the guided practice? If not could they use multiplication instead of other operations?
- Did they need to use any of the Order of Operations rules?

Discuss the student practice *A Day at Vinnie's Video*.

Use **www.aplusmath.com** to make practice sheets.

A Great visual resource for teaching division and multiplication facts to students that are having a difficult time memorizing them is *Times Tables the Fun Way Division Cards and Times Table the Fun Way, A Picture Method of Learning the Multiplication Facts* by Judy Liautaud www.citycreek.com

Suggested Activities from the *Teacher's Guide to the Alaska Benchmark Examination Grade 6*

Making Change

- Set up a class store, bake sale, or class "garage" sale. Have students count back change.
- Play games such as Monopoly.

Understanding commutative and identity properties of multiplication

- Use rectangular arrays (3 x 4 and 4 x 3).
- Use patterns to discover identity property (3 x 1, 1 x 4, 5 x 1 …).
- Use identity property to find equivalent fractions (2/3 x 4/4 = 8/12).

Answers:

1. **$32.08**
2. **$13.26**
3. **$8.87**
4. **$19.12; $19.13**
5. **$9.30; $18.59**
6. **$7.00; $20.99**
7. **$52.84**
8. **$7.99**
9. **$13.26**
10. **$112.93**

1. **■ - ▲**
2. **■ + ▲**
3. **● ÷ ▲**
4. **▲ x ●**
5. **▲ - ■**
6. **▲ - ■**
7. **(● + ▲) - ■**
8. **■ - (▲ + ●)**
9. **(● x ■) - ▲**
10. **(▲ - ●) + ■ OR (▲ + ■) - ●**
11. **(● x ▲) - ■**
12. **(■ ÷ ●) - ▲**