

Just In Time Quick Check
Standard of Learning (SOL) 8.4

Strand: Computation and Estimation

Standard of Learning (SOL) 8.4

The student will solve practical problems involving consumer applications.

Grade Level Skills:

- Solve practical problems involving consumer applications by using proportional reasoning and computation procedures for rational numbers.
- Reconcile an account balance given a statement with five or fewer transactions.
- Compute a discount or markup and the resulting sale price for one discount or markup.
- Compute the sales tax or tip and resulting total.
- Compute the simple interest and new balance earned in an investment or on a loan given the principal amount, interest rate, and time period in years.
- Compute the percent increase or decrease found in a practical situation.

Just in Time Quick Check

Just in Time Quick Check Teacher Notes

Supporting Resources:

- VDOE Mathematics Instructional Plans (MIPS)
 - [8.4 - Consumer Applications – Taxes, Tips, and Simple Interest](#) (Word) / [PDF Version](#)
 - [8.4 - The Scoop-on-Ice-Cream Planning](#) (Word) / [PDF Version](#)
 - [8.4 - Percent of Increase or Decrease](#) (Word) / [PDF Version](#)
 - [8.4 - Do You Like to Spend Money?](#) (Word) / [PDF Version](#)
- VDOE Co-Teaching Mathematics Instruction Plans (MIPS)
 - [8.4 - Sales Tax and Discounts](#) (Word) / [PDF Version](#)
- VDOE Algebra Readiness Formative Assessments
 - [SOL 8.4](#) (Word) / [PDF](#)
- VDOE Algebra Readiness Remediation Plans
 - [Practical Problems - Consumer Applications](#) (Word) / [PDF](#)
 - [Practical Problems - Discount](#) (Word) / [PDF](#)
 - [Practical Problems - Tax and Discount](#) (Word) / [PDF](#)
 - [Practical Problems and Simple Interest](#) (Word) / [PDF](#)
 - [Problem Solving – Strategies for Finding the Hidden Question](#) (Word) / [PDF](#)
 - [Scale Drawings - Using Proportional Reasoning](#) (Word) / [PDF](#)
 - [Solving Practical Problems Using Proportional Reasoning I](#) (Word) / [PDF](#)
 - [Solving Practical Problems Using Proportional Reasoning II](#) (Word) / [PDF](#)
 - [Solving Practical Problems Using Proportional Reasoning III](#) (Word) / [PDF](#)
- VDOE Word Wall Cards: Grade 8 ([Word](#)) | ([PDF](#))
 - Proportion
 - Percent of Increase
 - Percent of Decrease
 - Reconcile an Account

Strand: Computation and Estimation

- VDOE Rich Mathematical Tasks: Principal's Dilemma
 - [8.4 Principal's Dilemma Task Template \(Word\)](#) / [PDF Version](#)
- Other VDOE Resources
 - [eMediaVA: Computation and Estimation – Grade 8](#)

Supporting and Prerequisite SOL: [7.2](#), [7.3](#), [6.2a](#), [6.5b](#), [6.5c](#), [6.6a](#), [6.6b](#), [6.13](#)

SOL 8.4 - Just in Time Quick Check

1. Jeremiah works at a skateboard shop and is paid at the end of each week.

- He earns \$245 a week plus 15% commission on each skateboard he sells.
- Each skateboard sells for \$54.

If Jeremiah sells 27 skateboards this week, how much will he earn, in total, at the end of the week?

2. Each week Kristiana checks her bank statement to make sure it is correct.

- Monday, July 13, 2020, Kristiana received a refund check for \$42.73 that was deposited into her account.
- Wednesday, July 15, 2020, her paycheck of \$973.80 was deposited into her account.
- Thursday, July 16, 2020, she ordered a computer case from Amazon for \$32.25. She also used her bankcard to purchase \$34.57 in gas.
- Friday, July 17, 2020, she spent \$102.34 at Trader Jerry's grocery store.

Below is a picture of her bank statement.

| Date | Transaction Description | Withdrawal | Deposit | Balance |
|---------|-------------------------|------------|----------|------------|
| 7-13-20 | Starting Balance | | | \$542.98 |
| 7-13-20 | Refund Check | \$42.73 | | \$500.25 |
| 7-15-20 | Paycheck | | \$973.80 | \$1,474.05 |
| 7-16-20 | Amazon | \$32.25 | | \$1,441.80 |
| 7-17-20 | Trader Jerry's | \$102.34 | | \$1,329.46 |

A. Identify the error(s) and explain why they are errors.

B. What should her account balance be at the end of these transactions?

3. A shoe distributor sells a particular pair of shoes to a store for \$42.80. The store then sells this pair of shoes to a customer at a 35% markup. How much money does the store make from selling one pair of shoes to a customer?

4. Treyvon buys one bag of chips for \$2.75, three sticky buns for \$1.35 each, and two sodas for \$3.60 each. The sales tax rate for items purchased is 5.5%. How much does Treyvon pay for all of the items he purchased, including tax?

5. Nia puts \$750 into a savings account. The simple interest rate for the savings account is 3%. If Nia does not withdraw or deposit any additional money, how much money will be in Nia's account at the end of 2.5 years?

6. In the month of May 2019, Norfolk International Airport had approximately 360,000 passengers. In the month of May 2020, they had approximately 46,000 passengers. What is the percent decrease in the number of passengers from May 2019 to May 2020?

SOL 8.4 - Just in Time Quick Check Teacher Notes

Common Errors/Misconceptions and their Possible Indications

1. Jeremiah works at a skateboard shop and is paid at the end of each week.

- He earns \$245 a week plus 15% commission on each skateboard he sells.
- Each skateboard sells for \$54.

If Jeremiah sells 27 skateboards this week, how much will he earn, in total, at the end of the week?

A common error that students might make is to calculate 15% of what he initially earns rather than 15% of what his total sales are for the week. This may indicate that the student is confused about applying the commission to the total sales to obtain the how much Jeremiah earned for the entire week. Students may benefit from additional practice with multistep word problems. This may also indicate that students do not have an understanding of the vocabulary word commission to be able to apply the percent correctly. Students may benefit from creating a Frayer Model for the word commission.

2. Each week Kristiana checks her bank statement to make sure it is correct.

- Monday, July 13, 2020, Kristiana received a refund check for \$42.73 that was deposited into her account.
- Wednesday, July 15, 2020, her paycheck of \$973.80 was deposited into her account.
- Thursday, July 16, 2020, she ordered a computer case from Amazon for \$32.25. She also used her bankcard to purchase \$34.57 in gas.
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A. Identify the error(s) and explain why they are errors.

A student may say the only error is Kristiana forgot to include the gas payment and missed that the refund check is entered as a withdrawal. This error may indicate that students have not yet developed a deep understanding of scenarios that represent deposits and withdrawals and their relationship to an account balance. Students may benefit from additional practice with the vocabulary associated with bank accounts such as withdrawal and deposit. Providing students with a visual of these words may benefit students as well. See Math 8 Word Wall Cards (Reconcile an Account).

B. What should her account balance be at the end of these transactions?

A student may determine the ending balance is \$1,424.92 after identifying the refund check should be a deposit. Another student may state that the balance is correct indicating the student may not understand which transactions are deposits and which are withdrawals. This error may indicate that the student did not include all of the transactions in determining the ending balance. Students may benefit from checking off each transaction as they are posted to the account.

3. A shoe distributor sells a particular pair of shoes to stores for \$42.80. The store sells these pairs of shoes to customers at a 35% markup. How much money does the store make from selling one pair of shoes to a customer?

A common error a student may make is providing an answer that represents the markup price a customer pays for one pair of shoes. This may indicate that the student does not understand the relationship between part (amount of markup) and whole (price a customer pays). A student making this error may benefit from additional practice with word problems and drawing a picture to represent the problem. A review of consumer application vocabulary terms would also be beneficial, specifically discount and markup.

4. Treyvon buys one bag of chips for \$2.75, three sticky buns for \$1.35 each, and two sodas for \$3.60 each. Sales tax rate for items purchased is 5.5%. How much does Treyvon pay for all of the items he purchased, including tax?

A common error a student may make is finding and including the sales tax for purchasing one bag of chips, one sticky bun, and one soda. This indicates that the student focused on the price of each item rather than the quantity of each item purchased. Students may benefit from additional practice with multistep word problems. A student may also benefit from highlighting the key words in the question to identify the quantity and price of items purchased.

Other potential errors a student may make are only finding the sales tax amount or subtracting the amount of tax from the cost of the items. This may indicate that a student does not understand the vocabulary associated with tip, tax, and discount. A student may benefit from more practice using the vocabulary in consumer math problems. (VDOE Mathematics Instructional Plans-8.4 - Consumer Applications – Taxes, Tips, and Simple Interest)

5. Nia puts \$750 into a savings account. The simple interest rate for the savings account is 3%. If Nia does not withdraw or deposit any money, how much money will be in Nia’s account at the end of 2.5 years?

A common error a student may make is only finding the amount of interest and neglecting to add that to the initial amount in the savings account. This may indicate that a student has not yet developed an understanding of multistep word problems. See question 1 for more information. A student may also benefit from highlighting the key words in the question to identify if the question is asking for the interest or the total amount.

Other common misconceptions a student may make are to compute the interest for only one year resulting in an amount of \$772.50 or forgetting to change 3% to a decimal value resulting in a balance of \$6,375. Both of these errors indicate a student may not understand the formula and parts of the formula used to compute simple interest. A student may benefit from more practice identifying the interest and principal in real world contexts. See VDOE Algebra Readiness Remediation Plans-Practical Problems and Simple Interest for additional practice.

6. In the month of May 2019, Norfolk International Airport had approximately 360,000 passengers. In the month of May 2020, they had approximately 46,000 passengers. What is the approximate percent decrease in the number of passengers?

A student may state the percent change is 682% by incorrectly computing the percent of change, $\left(\frac{360000-46000}{46000}\right)$. Another common misconception a student may make when finding percent of decrease is to subtract the two values and attach a percent to that difference, resulting in a 314,000% decrease. Both of these errors indicate the student may not understand the concept of percent of decrease. Students may benefit from continuing to explore percent of change in real world problems. Providing students with a visual of these words may benefit students as well, see [Math 8 Word Wall Cards \(Percent Increase and Percent Decrease\)](#). Refer to VDOE Mathematics Instructional Plans - [8.4 - Percent of Increase or Decrease](#) for additional practice.

Another error a student may correctly calculate the initial percent of decrease $\left(\frac{360000-46000}{360000}\right)$ but state the percent of change as 8.72% or 8%. This error indicates the student may not understand amount computed from this calculation must be converted to a percent. The student may benefit from additional practice with percent of change problems that result in an answer of over 100%.