



CORE Assessment Module Module Overview

Content Area	Mathematics
Title	T-Shirts
Grade Level	Grade 7
Problem Type	Performance Task
Standards for Mathematical Practice	<p>Mathematical Practice 1 (MP1): Make sense of problems and persevere in solving them.</p> <p>Mathematically proficient students:</p> <ul style="list-style-type: none"> • Explain to themselves the meaning of a problem and look for entry points to its solution. • Analyze givens, constraints, relationships, and goals. • Make conjectures about the form and meaning of the solution and plan a solution pathway rather than simply jumping into a solution. • Consider analogous problems, and try special cases and simpler forms of the original problem in order to gain insight into its solutions. • Monitor and evaluate their progress and change course if necessary. • Transform algebraic expressions or change the viewing window on their graphing calculator to get information. • Explain correspondences between equations, verbal descriptions, tables, and graphs. • Draw diagrams of important features and relationships, graph data, and search for regularity or trends. • Use concrete objects or pictures to help conceptualize and solve a problem. • Check their answers to problems using a different method. • Ask themselves, “Does this make sense?” • Understand the approaches of others to solving complex problems and identify correspondences between approaches. <p>Mathematical Practice 5 (MP5): Use appropriate tools strategically.</p> <p>Mathematically proficient students:</p> <ul style="list-style-type: none"> • Consider the available tools when solving a mathematical problem (tools might include pencil and paper, concrete models, a ruler, a protractor, a calculator, a spreadsheet, a computer algebra system, a statistical package, or dynamic geometry software). • Are sufficiently familiar with tools appropriate for their grade or course to make sound decisions about when each of these tools might be helpful, recognizing both the insight to be gained and their limitations. • Detect possible errors by strategically using estimation and other mathematical knowledge. • Know that technology can enable them to visualize the results of varying assumptions, explore consequences, and compare predictions with data. • Identify relevant external mathematical resources, such as digital content on a website, and use them to pose or solve problems. <p>Use technological tools to explore and deepen their understanding of concepts.</p>

Common Core State Standards	<p>7.NS.3 Solve real-world and mathematical problems involving the four operations with rational numbers.</p> <p>7.EE.1 Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.</p> <p>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 answers using mental computation and estimation strategies.</p> <p>7.EE.4 Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities.</p>
SBAC Assessment Claims	Claim 2: Problem Solving —Students can solve a range of complex, well-posed problems in pure and applied mathematics, making productive use of knowledge and problem solving strategies.
Task Overview	Students will be asked to solve constructed response questions examining two different price structures, evaluating expressions and writing equations for each. Students will analyze the price structures, draw conclusions, develop logical arguments, and cite evidence to support their reasoning.
Module Components	<p>1) Scoring Guide</p> <p>2) Task</p>

T-Shirts Scoring Guide

Description	Points	Total Points										
Credit for specific aspects of performance should be given as follows:												
1. Student gives correct answer: He should choose Shantay’s Shirts because that would cost him \$603, Paula’s Printing the total cost is \$645. Student shows work (This may include correct process, but incorrect arithmetic.) Student’s recommendation to Bill should include two of these “look for” phrases: <ul style="list-style-type: none"> • Shantay’s Shirts is cheaper • Paula’s Printing is more expensive • Comparison of \$645 to \$603 	1 1 1–2	4										
2. Student gives the correct cost for 1 and 5 T-shirts. (tables different) Student gives the correct cost for 10 and 25 T-shirts. <table border="1" style="margin-left: 20px; margin-top: 10px;"> <thead> <tr> <th style="text-align: left;">Number of T-Shirts</th> <th style="text-align: center;">1</th> <th style="text-align: center;">5</th> <th style="text-align: center;">10</th> <th style="text-align: center;">25</th> </tr> </thead> <tbody> <tr> <th style="text-align: left;">Cost</th> <td style="text-align: center;">\$21.50</td> <td style="text-align: center;">\$107.50</td> <td style="text-align: center;">\$215</td> <td style="text-align: center;">\$537.50</td> </tr> </tbody> </table>	Number of T-Shirts	1	5	10	25	Cost	\$21.50	\$107.50	\$215	\$537.50	1 1	2
Number of T-Shirts	1	5	10	25								
Cost	\$21.50	\$107.50	\$215	\$537.50								
3. Student writes the correct equation (may be given in equivalent form): $P = 21.5t$ Student defines the variables (students may use their own): $t =$ “number of” T-shirts $P =$ total “cost” for Paula’s Prints	1 1 1	3										
4. Student writes the correct equation (may be given in equivalent form): $S = 18t + 63$ Student defines the variables (students may use their own): $t =$ “number of” T-shirts $S =$ total “cost” for Shantay’s Shirts	1 1 1	3										
5. Students solve each equation for t using 495 as the S value. Students state that Shantay’s would give you more shirts	1 1	2										
6. Students would explain that the value from question 6 or the table values are getting closer together	1	1										
7. Students use the table or guess and check or some other means to decide that 18 is the number of shirts that is the same cost for either company.	3	3										
TOTAL POINTS: (possible points = 18 points)												

T-Shirts

Bill and Jose are going to order T-shirts for their school clubs. The T-shirts will have the club logo printed on the front. Bill asks two local T-shirt companies to give him a price.

Paula's Printing charges \$21.50 for each T-shirt.

Shantay's Shirts has a one-time set-up fee of \$63 and then charges \$18 for each T-shirt.

1. Bill needs to order 30 T-shirts for his club. Which company should Bill choose to spend the least amount of money? Use math to justify your recommendation.



2. Complete the table to explore the cost of buying various numbers of T-shirts from Paula's Printing and Shantay's Shirts

Number of T-shirts	2	4	6	8					
Cost for Paula's									
Cost for Shantay's									

3. Write a linear equation that represents the cost of buying T-shirts from Paula's Printing. Identify the meaning of each variable in your equation.

4. Write a linear equation that represents the cost of buying T-shirts from Shantay's Shirts. Identify the meaning of each variable in your equation.

Student Name _____

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