

## MAT.08.ER.2.0000F.C.130 Claim 2

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| Sample Item ID:  | MAT.08.ER.2.0000F.C.130   |
| Grade:   | 08  |
| Primary Claim:   | <b>Claim 2: Problem Solving</b><br>Students can solve a range of complex well-posed problems in pure and applied mathematics, making productive use of knowledge and problem solving strategies.  |
| Secondary Claim(s):                                      | Claim 1: Concepts and Procedures<br>Students can explain and apply mathematical concepts and carry out mathematical procedures with precision and fluency.  |
| Primary Content Domain:                                  | Functions   |
| Secondary Content Domain(s):                             |   |
| Assessment Target(s):                                    | 2 C: Interpret results in the context of a situation.<br><br>2 A: Apply mathematics to solve well-posed problems arising in everyday life, society, and the workplace.<br><br>1 F: Use functions to model relationships between quantities. |
| Standard(s):   | 8.F.4   |
| Mathematical Practice(s):                                | 2, 4, 5   |
| DOK:   | 3   |
| Item Type:   | ER  |
| Score Points:  | 2   |
| Difficulty:  | M   |
| Key:   | See Sample Top-Score Response.  |
| Stimulus/Source:   |   |
| Target-specific attributes (e.g., accessibility issues): | Calculators may be used for this item.  |
| Notes:   | Part of PT set. The numerical entries are limited to 4 digits.  |

The total cost of an order of shirts from a company consists of the cost of each shirt plus a one-time design fee. The cost of each shirt is the same regardless of how many shirts are ordered.

The company provides the following examples to customers to help them estimate the total cost of an order of shirts:

- 50 shirts cost \$349.50
- 500 shirts cost \$2370

**Part A**

Based on the examples, what is the cost of each shirt, **not** including the one-time design fee?

\$

Explain how you found your answer.

**Part B**

What is the cost of the one-time design fee?

\$

Explain how you found your answer.

*Sample Top-Score Response:*

*Part A*

\$4.49; 450 more shirts cost \$2020.50 more, and 2020.50 divided by 450 is 4.49.

*Part B*

\$125; Since each shirt costs \$4.49, 50 shirts cost \$224.50, which means that the design fee is \$125.

*Scoring Rubric:*

Responses to this item will receive 0-2 points, based on the following:

**2 points:** The student shows a thorough understanding of how to use a function to model a relationship between quantities. The numerical responses are equal to the answers given in the Sample Top-score Response and the explanations are complete and correct.

**1 point:** The student shows a partial understanding of how to use a function to model a relationship between quantities. One numerical response and the corresponding explanation are correct.

**0 points:** The student shows inconsistent or no understanding of how to use a function to model a relationship between quantities.