T-Shirts

Purpose: This performance task will assess a student's ability to graph real data and draw a logical and appropriate conclusion about the data. The data describes two types of relationships: linear functions and step functions. Students will develop a presentation that includes graphs and a proposal that states reasoning and gives support for their recommendation.

Show-Me Standards Addressed:

Knowledge	M1, M4, M6
Performance	1.8, 2.1, 3.5, 4.1

Grade Level Range: high school level

Subject Area: math

Materials and Resources Needed:

- pencil
- graph paper
- word processor (optional)
- graphing utility (optional)
- student performance packet

Time Needed for Task: two 50-minute class periods

T-Shirts: Student Prompt

You work for the youth sports league in your city. The league has three T-shirt companies that it does business with on a regular basis. You can purchase the same T-shirts from all three companies at about the same price, except for the cost of printing the silk screen on the T-shirts. It is your job to determine which company has the cheapest total cost for printing. Use the Printing Charges Reference Sheet to find each company's present rates.

You are to make a presentation to the President and board of the youth sports league next week. You will have to convince them which company the league should continue to support with its business. Your presentation should include graphs or charts illustrating each company's printing rate for 50, 125, 500, and 1000 T-shirts. A written summary is required, and it must provide reasons and support for your recommendation.

Printing Charges Reference Sheet

Company A

Add $23.50 for printing on orders up to 50 T-shirts.
Add $15.50 for printing on orders between 51 and 250 T-shirts.
Add $12.75 for printing on orders between 251 and 500 T-shirts.
Add $8.35 for printing on orders over 500 T-shirts.

Screen design cost: $50.

Company B

Number of shirts	Printing cost
Up to 10 shirts	$67.00
11 – 25 shirts	$57.00
26 – 40 shirts	$47.00
41 – 60 shirts	$37.00
61 – 75 shirts	$27.00
76 – 100 shirts	$20.00
101 – 125 shirts	$16.50
126 – 175 shirts	$13.00
176 – 250 shirts	$11.00
251 – 325 shirts	$7.75
326 – 400 shirts	$5.50
401 – 500 shirts	$3.85
501 and over	$2.00

Company C

Screen design cost: $35

Up to 10 shirts	$13.95
11 – 20 shirts	$12.50
21 – 30 shirts	$10.85
31 – 40 shirts	$9.95
41 – 50 shirts	$8.95
51 – 60 shirts	$7.85
61 – 75 shirts	$6.85
76 – 90 shirts	$5.75
91 – 250 shirts	$4.50
251 – 500 shirts	$3.00
501 and over	$1.50

T-Shirts: Graphs/Charts

Board Presentation

Written Summary of Recommendation

Attach charts or graphs to the back of this page.

T-Shirts: Graphs/Charts
Scoring Guide

Exemplary: 4
The rates for each company are graphed accurately using an appropriate scale, the axes are labeled correctly, the title is present, and the graphs are presented neatly.

Proficient: 3
The rates for each company are, for the most part, graphed correctly, the axes are labeled correctly, the title is present, and the graphs can be understood.

Emergent: 2
The rates for each company are graphed with some significant errors. The scales may not extend sufficiently to address all fluctuations in the graph. The axes may be reversed. However, there is some demonstration of how to graph the data. Labels are omitted on one or both axes, and there may or may not be a title.

Attempted: 1
The rates for each company are partially graphed. Scales may or may not be labeled. The graphs are attempted but contain significant errors.

Off Task or No Attempt: 0

Students receiving a 2, 1, or 0 will need to revise work to a proficient level.

T-Shirts: Presentation
Scoring Guide

Exemplary: 4
The presentation clearly states and supports the recommendation to the board. It includes accurate calculations for 50, 125, 500, and 1000 T-shirts. This presentation also takes into consideration having overnight deliveries as well as regular deliveries.

Proficient: 3
The presentation clearly states and supports the recommendation to the board. It includes accurate calculations for 50, 125, 500, and 1000 T-shirts. This presentation may or may not take into consideration having overnight deliveries as well as regular deliveries. The presentation has some minor flaws but overall demonstrates the understanding of the problem and how to reach an appropriate conclusion.

Emergent: 2
The presentation does not clearly state and support the proposed recommendation. There may be some flaws in calculations for 50, 125, 500, and 1000 T-shirts.

Attempted: 1
The presentation does not state and/or support a proposal to the board. There are major flaws in the calculations for 50, 125, 500, and 1000 T-shirts. Some of the calculations may not be stated or shown in the presentation.

Off Task or No Attempt: 0

Students receiving a 2, 1, or 0 will need to revise work to a proficient level.