

THINKING WITH MATHEMATICAL MODELS

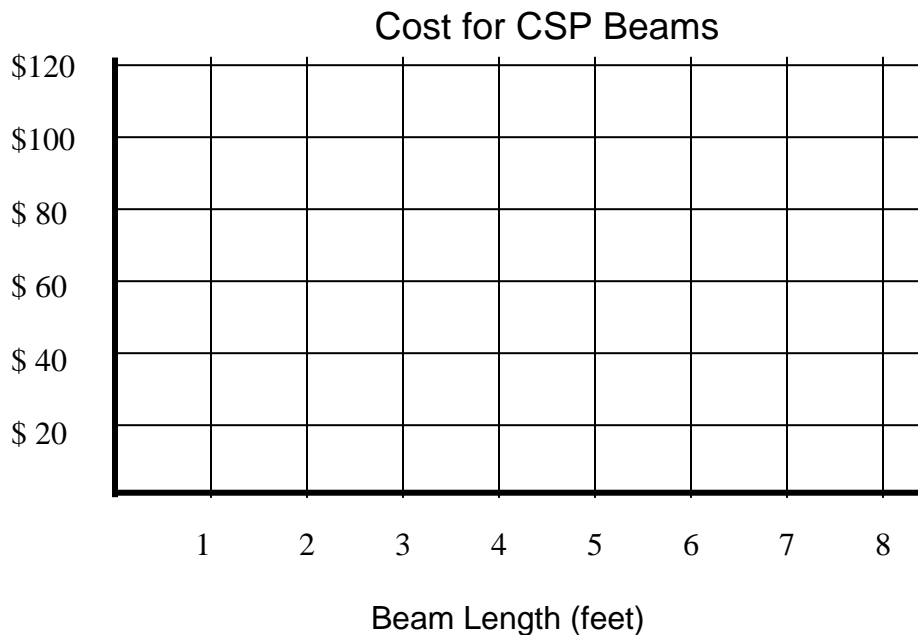
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3.) A beam or staircase frame from CSP costs **\$2.25** for each rod, plus **\$50** for shipping and handling.

a) Refer to your data in **Question A from Problem 1.3**. Copy and complete the following table to show the costs for beams of different lengths.

Beam Length (ft)	1	2	3	4	5	6	7	8
Number of Rods	3	7					27	
Cost of Beam (\$)								

b) Make a graph of the (*beam length, cost*) data.

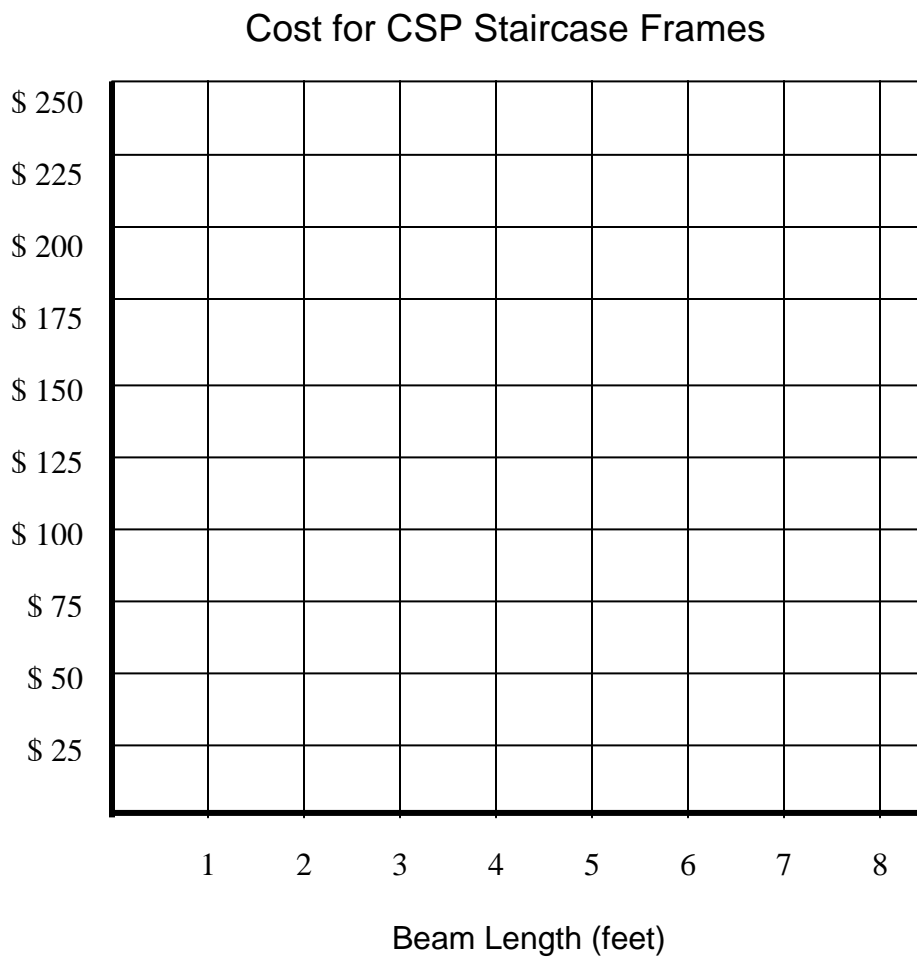


c) Describe the relationship between beam length and cost.

- d) Refer to your data for **Question B from Problem 1.3**. Copy and complete the following table to show the costs for staircase frames with different number of steps.

Number of Steps	1	2	3	4	5	6	7	8
Number of Rods	4	10	18					
Cost of Frame (\$)								

- e) Make a graph of the (number of steps, cost) data.

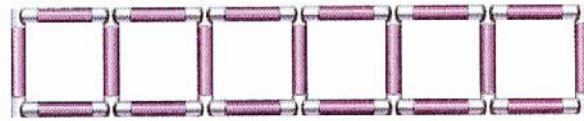


- f) Describe the relationship between the number of steps and the cost.

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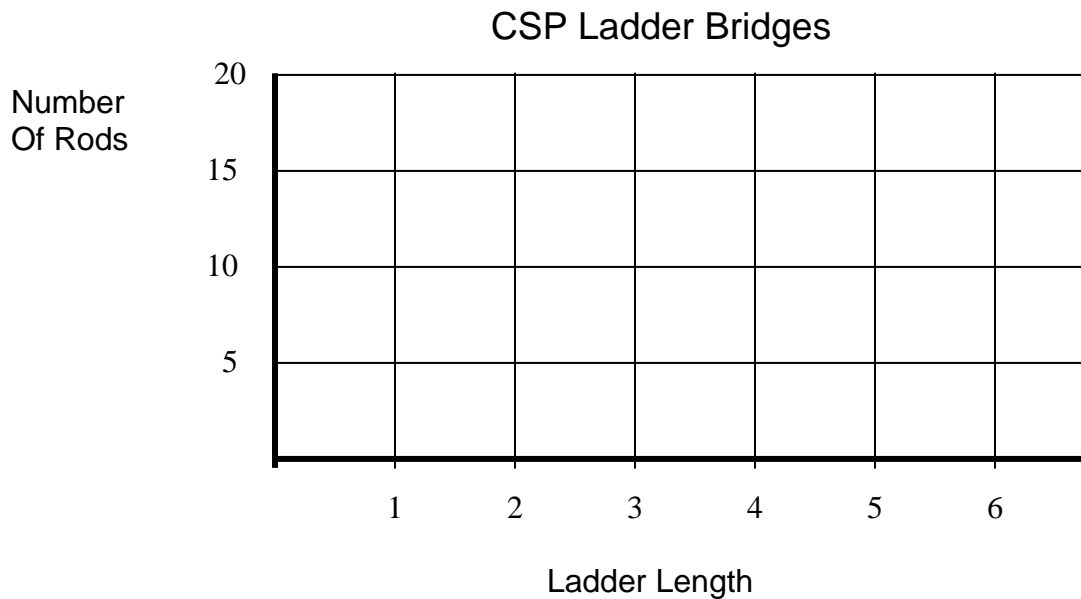
- 6.) CSP also sells ladder bridges made from 1-foot steel rods arranged to form a row of squares. Below is a 6-foot ladder bridge.



6-foot ladder bridge made from 19 rods

- a) Complete the table and graph showing how the number of rods in a ladder bridge is related to the length of the bridge.

Ladder Length (feet)	1	2	3	4	5	6
Number of Rods						19



- b) How does the pattern of change for the ladder bridges compare with those for beams and staircase frames in **Problem 1.3**.

A survey of one class at Pioneer Middle School finds that 20 out of 30 students would spend \$8 for a school T-Shirt. Use this information for exercises 7 and 8.

- 7.) Multiple Choice. Suppose there are 600 students in the school. Based on the survey, how many students do you predict would spend \$8 for a school T-Shirt?

A. 20 B. 200 C. 300 D. 400

- 8.) Multiple Choice. Suppose there are 450 students in the school. Based on the survey, how many students do you predict would spend \$8 for a school T-Shirt?

A. 20 B. 200 C. 300 D. 400

Within each equation, the pouches shown contain the same number of coins. Find the number of coins in each pouch. Explain your method.

16.



17.

