TAKS PROBLEMS ON DRAWING VALID CONCLUSIONS FROM DATA

Below are examples of problems in multiple choice format that involve drawing valid conclusions from data. Try solving the problems before looking at the solutions. (Cover the solutions with a piece of paper.) Then check your solutions against the ones given.

1. The table shows the cost of silk-screen shirts. Which conclusion can you make based on the information in the table?

Number of shirts ordered	Cost per shirt
10	$9.50
60	$8.40
110	$7.40
160	$6.50
210	$5.70

  A The cost per shirt increases as the number of shirts ordered increases.

  B There is about a 12% savings with each additional increase of 50 shirts ordered.

  C The cost of 20 shirts is more than $200.

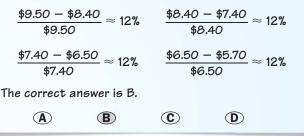 **D** The cost of 110 shirts is less than the cost of 60 shirts.

Solution

Choice A is incorrect because the cost per shirt decreases as the number of shirts increases.

Choice C is incorrect because the cost per shirt for 20 shirts is less than $10. So, the total cost of 20 shirts is less than 20($10) = $200.

Choice D is incorrect because the cost of 110 shirts is 110($7.40) = $814 and the cost of 60 shirts is 60($8.40) = $504.

Choice B is correct, as shown below.

$$\frac{\$9.50 - \$8.40}{\$9.50} \approx 12\% \qquad \frac{\$8.40 - \$7.40}{\$8.40} \approx 12\%$$

$$\frac{\$7.40 - \$6.50}{\$7.40} \approx 12\% \qquad \frac{\$6.50 - \$5.70}{\$6.50} \approx 12\%$$

The correct answer is B.

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2. In a survey of 120 student athletes, 72 said they exercise regularly during the off-season. Of these 72 student athletes, 18 said they exercise by running. A school newspaper reported "In a recent survey, 25% of student athletes said they exercise during the off-season by running." Which conclusion about the newspaper statement is valid?

  F The statement is accurate because 18 out of 72 students represents 25%.

  G The statement is accurate because student athletes train all year.

  H The statement is inaccurate because only 15% of the student athletes surveyed said they exercise during the off-season by running.

  J The statement is inaccurate because the survey should include *all* students.

Solution

Choice F is incorrect because there were 120 student athletes surveyed, not 72.

Choice G is incorrect because only 72 out of 120 student athletes train all year.

Choice J is incorrect because the fact that the survey included only student athletes does not affect the accuracy of the statement.

Choice H is correct because the newspaper statement is inaccurate for the reason given.

The correct answer is H.

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