PROBLEM SOLVING ON TAKS

Below are examples that test problem solving skills in multiple choice format. 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, in dollars, of renting a campsite for n days. What would you expect the cost of renting the campsite for 10 days to be?

Number of days	1	2	3	4	5
Cost (dollars)	25	40	55	70	85

   A $150

   B $160

   C $170

   D $250

Solution

The first day costs $25, and each additional day costs an additional $15. Use this pattern to write an expression.

The cost, in dollars, of renting the campsite for n days is given by the expression $25 + 15(n - 1)$. Evaluate the expression when $n = 10$.

$25 + 15(10 - 1) = 25 + 15(9) = 25 + 135 = 160$

When n = 10, the cost is $160, so the correct answer is B.

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2. Jed has $2000 in a savings account and plans to save 20% of his salary each month. Erin has $1000 in her savings account and plans to save 25% of her salary each month. If you ignore interest, what information would allow you to determine whose account will have more money in it after 5 months?

   F Jed's salary

   G Jed's and Erin's salaries

   H The amount Jed deposits each month

   J The amount Erin deposits each month

Solution

Model the amount, in dollars, in each account after n months.

Jed: $2000 + 0.20 \cdot$ (Jed's salary) $\cdot$ n

Erin: $1000 + 0.25 \cdot$ (Erin's salary) $\cdot$ n

To evaluate the expressions and compare the values, you need to know both Jed's and Erin's salaries, so the correct answer is G.

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3. The population of a town has doubled every 10 years for the last 30 years. The current population is 10,000. What was the population 30 years ago?

   A 1250

   B 1750

   C 2500

   D 5000

Solution

Consider that the population 10 years ago was half the current population. Make a table.

Years ago	0	10	20	30
Population	10,000	5000	2500	1250

The population 30 years ago was 1250, so the correct answer is A.

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