

## PROBLEM SOLVING ON TAKS

Below are examples in multiple choice format that test problem solving skills. 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. At a recent track meet, Julia won 3 more events than Barbara. Barbara won twice as many events as Debbie. The three girls won a total of 8 events. Which equation can be used to find the number of events Debbie won?

- A**  $x + 3x + 3x + 2 = 8$   
**B**  $x + 3x + 2 = 8$   
**C**  $x + 2x + 2x + 3 = 8$   
**D**  $x + 2x + 3 = 8$

2. Dave is selling popcorn that costs \$15 per tin. His family purchased 8 tins. How many more tins of popcorn must he sell to collect \$600?

- F** 32  
**G** 40  
**H** 60  
**J** 75

### Solution

You know that Barbara won twice as many events as Debbie and that Julia won 3 more events than Barbara.

Let  $x$  be the number of events Debbie won. Write the number of events Barbara and Julia won in terms of  $x$ .

Because Barbara won twice as many events as Debbie, her total number of wins is  $2x$ . Julia won 3 more events than Barbara, so her total number of wins is  $2x + 3$ . Add the wins and set the sum equal to 8:  $x + 2x + 2x + 3 = 8$ .

The correct answer is C.

- (A)**      **(B)**      **(C)**      **(D)**

You can solve for  $x$  to check your answer.

### Solution

You know the price per tin of popcorn, the number of tins Dave's family purchased, and the total amount of money he needs to collect.

Write an equation for this situation.

Total money collected (dollars)	=	Popcorn price (dollars/tin)	·	Number of tins sold (tins)
↓		↓		↓
600	=	15	·	(8 + n)

An equation is  $600 = 15(8 + n)$ . Solving the equation gives  $n = 32$ .

The correct answer is F.

- (F)**      **(G)**      **(H)**      **(J)**

You can use unit analysis to check your answer.

$$\$600 = \frac{\$15}{1 \text{ tin}} \cdot (8 + 32) \text{ tins}$$