

## MULTI-STEP AREA PROBLEMS ON TAKS

Below are examples of multi-step area problems 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. Chris wants to build a 16 foot by 20 foot rectangular patio using square patio bricks that measure 2 feet on each side. If the bricks are not cut, how many bricks will Chris need to build the patio?

**A** 80 bricks  
**B** 160 bricks  
**C** 320 bricks  
**D** 640 bricks

### Solution

$$\text{Area of patio} = 20(16) = 320 \text{ ft}^2$$

$$\text{Area of brick} = 2(2) = 4 \text{ ft}^2$$

Divide the area of the patio by the area of a brick to find the number of bricks needed to cover the patio:

$$320 \text{ ft}^2 \div 4 \text{ ft}^2 = 80$$

Chris will need 80 bricks, so the correct answer is A.

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

2. A driveway is shaped like a parallelogram with a base of 10 feet and a height of 24 feet. Paving the driveway costs \$8 per square foot. How much will paving the entire driveway cost?

**F** \$30  
**G** \$272  
**H** \$1,428  
**J** \$1,920

### Solution

$$\begin{aligned} \text{Area of driveway} &= 10(24) \\ &= 240 \text{ ft}^2 \end{aligned}$$

$$\text{Cost of paving} = \$8/\text{ft}^2$$

Multiply the area of the driveway by the paving cost per square foot to find the total cost of paving the driveway:

$$240 \text{ ft}^2 \cdot \$8/\text{ft}^2 = \$1,920$$

The total cost is \$1,920, so the correct answer is J.

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

3. The center circle on a lacrosse field needs to be reseeded. The radius of the circle is 30 feet. If 1 pound of grass seed covers 400 square feet, about how many pounds of grass seed are needed to cover the circle?

**A** 5 lb  
**B** 7 lb  
**C** 9 lb  
**D** 13 lb

### Solution

$$\begin{aligned} \text{Area of circle} &\approx 3.14(30)^2 \\ &= 2826 \text{ ft}^2 \end{aligned}$$

$$\text{Amount of seed needed} = \frac{1 \text{ lb}}{400 \text{ ft}^2} = 0.0025 \text{ lb}/\text{ft}^2$$

Multiply the area of the circle by the amount of seed needed per square foot.

$$2826 \text{ ft}^2(0.0025 \text{ lb}/\text{ft}^2) \approx 7.065 \text{ lb}$$

About 7 pounds of grass seed are needed, so the correct answer is B.

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