

Plan, Solve, Check

Use math tools to make and defend decisions.

GRADE 8 • TEKS 8.1

8.1 "Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to: apply mathematics to problems arising in everyday life, society, and the workplace..."

NAME _____

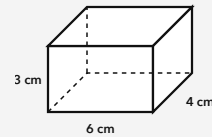
DATE _____

A USEFUL PROBLEM-SOLVING PLAN

First, list what you know and what you need to find. Choose a tool or operation, solve, then check whether your answer has the right unit and makes sense. Explain your choice with numbers, words, or a diagram.

WORKED EXAMPLE

A library packs books in the shown box. Find its volume. Then check whether an estimate near 70 cm^3 is reasonable.



1. Use $V = l \times w \times h$.
2. Substitute: $V = 6 \times 4 \times 3$.
3. Multiply: $V = 72 \text{ cm}^3$.
4. Since 72 is near 70, the estimate is reasonable.

Answer: 72 cm^3

PRACTICE 4 problems

- 1** Plan, solve, and check: A drama club sells 7 tickets for \$8 each. What is the revenue? Give a multiplication check.

ANSWER _____

- 2** Plan, solve, and check: A team has 45 players. Each van holds 8 players. What is the least number of vans needed? Explain why.

ANSWER _____

- 3** Plan, solve, and check: A music app has 18 songs. You make playlists of 5 songs each. How many full playlists can you make, and how many songs are left?

ANSWER _____

- 4** Plan, solve, and check: A 12-ounce juice costs \$3. A 20-ounce juice costs \$4. Which is the better buy per ounce? Show both unit prices.

ANSWER _____

APPLY IT Show your work

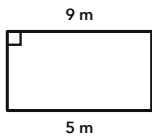
- 1** The table shows a skate shop's rental bills. Use the pattern to predict the cost for 5 hours. Explain your pattern and check it against the table.

SKATE RENTAL COSTS

Hours	Cost
1	\$6
2	\$10
3	\$14
4	\$18

ANSWER _____

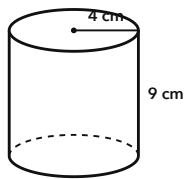
- 2** A garden club will put edging around the shown garden. Edging costs \$2 per meter. Find the total cost and explain why your perimeter is reasonable.



ANSWER _____

CHALLENGE One step up

The cylinder shown will hold sand for a lab model. It must hold at least 450 cm^3 . Use $\pi = 3.14$. Does it qualify? Show the volume calculation and an estimate-based check.



WORK SPACE AND ANSWER

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Plan, solve, and check: A drama club sells 7 tickets for \$8 each. What is the revenue? Give a multiplication check.	\$56; $7 \times 8 = 56$.
2	Plan, solve, and check: A team has 45 players. Each van holds 8 players. What is the least number of vans needed? Explain why.	6 vans; 5 vans hold 40 players, but 6 vans hold 48.
3	Plan, solve, and check: A music app has 18 songs. You make playlists of 5 songs each. How many full playlists can you make, and how many songs are left?	3 full playlists and 3 songs left; $3 \times 5 + 3 = 18$.
4	Plan, solve, and check: A 12-ounce juice costs \$3. A 20-ounce juice costs \$4. Which is the better buy per ounce? Show both unit prices.	The 20-ounce juice; $\\$3/12 = \\0.25 per ounce and $\\$4/20 = \\0.20 per ounce.

PART 2 • APPLY IT

1. **\$22** The cost increases by \$4 for each additional hour. Adding \$4 to the 4-hour cost of \$18 gives \$22.
2. **\$56** The perimeter is $2(9 + 5) = 28$ meters. At \$2 per meter, the cost is $28 \times 2 = \$56$.

CHALLENGE

Yes. $V = 3.14 \times 4 \times 4 \times 9 = 452.16 \text{ cm}^3$. An estimate, $3 \times 16 \times 9 = 432 \text{ cm}^3$, shows 452.16 cm^3 is reasonable.

Accept equivalent multiplication, division, perimeter, and volume expressions. For explanations, accept a correct numerical check that supports the stated answer.