

Plan, Solve, Check

Use models and math to make smart choices.

GRADE 7 • TEKS 7.1

7.1 "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 PLAN

First, identify the information you know and choose a representation, such as a bar, clock, table, or equation. Solve using a clear strategy. Then check that your answer has the right unit and makes sense in the situation.

WORKED EXAMPLE

A theater has sold the shaded part of its ticket goal. The full goal is 64 tickets. How many tickets were sold?



1. Read 3 shaded parts out of 8.
2. Divide 64 by 8 to get 8 tickets per part.
3. Multiply 8 by 3 to get 24.
4. Check: $24/64 = 3/8$.

Answer: 24 tickets

PRACTICE 4 problems

- 1** A hiking app shows the shaded part of a 42-km trail. How many kilometers has the hiker finished? Show a check.



ANSWER _____

- 2** Five game-card packs cost \$6.25. What is the cost of four packs at the same rate? Show your unit-rate check.

ANSWER _____

- 3** The clock shows when a student begins helping at a pet wash. The shift ends at 4:45, and the student earns \$18 per hour. How much does the student earn? Show a time check.



ANSWER _____

- 4** A club phone plan costs \$18 plus \$0.12 for each text. The club sends 35 texts. Find the bill. Estimate first, then check whether your exact answer is reasonable.

ANSWER _____

APPLY IT Show your work

- 1** Use the table. The art club needs 18 posters. What will they cost at this rate? Explain why the rate applies.

POSTER SHOP PRICES

Posters	Cost
2	\$5
4	\$10
6	\$15

ANSWER _____

- 2** A headset costs \$60. A coupon takes 25% off, then \$4.50 shipping is added. Kai has \$52. Can Kai buy it? Show a check using the budget.

WORK SPACE

ANSWER _____

CHALLENGE One step up

Two scooter apps have these prices. App A charges \$6 plus \$0.40 per minute. App B charges \$14 total. At how many minutes do the apps cost the same? For a 25-minute ride, which app costs less? Explain by showing both costs.

WORK SPACE AND ANSWER

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	A hiking app shows the shaded part of a 42-km trail. How many kilometers has the hiker finished? Show a check.	35 km; $35/42 = 5/6$.
2	Five game-card packs cost \$6.25. What is the cost of four packs at the same rate? Show your unit-rate check.	\$5.00; $\\$6.25 / 5 = \\1.25 per pack, and $4 \times \\$1.25 = \\5.00.
3	The clock shows when a student begins helping at a pet wash. The shift ends at 4:45, and the student earns \$18 per hour. How much does the student earn? Show a time check.	\$9; 4:15 to 4:45 is 30 minutes, or $1/2$ hour, and $\\$18 / 2 = \\9.
4	A club phone plan costs \$18 plus \$0.12 for each text. The club sends 35 texts. Find the bill. Estimate first, then check whether your exact answer is reasonable.	\$22.20; an estimate of about \$22 makes \$22.20 reasonable.

PART 2 • APPLY IT

- \$45** The rate is \$2.50 per poster because each row has the same cost per poster. Multiply 18 by \$2.50 to get \$45.
- Yes. The total is \$49.50, so Kai has \$2.50 left.** Find 25% of \$60, which is \$15, then subtract and add shipping: $\$60 - \$15 + \$4.50 = \49.50 . Compare \$49.50 with \$52.

CHALLENGE

They cost the same at 20 minutes because $\$6 + \$0.40(20) = \$14$. For 25 minutes, App A costs \$16 and App B costs \$14, so App B costs less.

Accept equivalent equations, unit-rate methods, and reasonable estimates. Require a check that connects the answer to the original situation.