

Plan Solve Check

Use a plan, solve carefully, and decide if your answer makes sense.

GRADE 4 • TEKS 4.1.B

4.1.B "use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution;"

NAME _____

DATE _____

A SMART PROBLEM-SOLVING PLAN

First, identify what you know and what you need to find. Choose an operation, solve, then check with an estimate or a related fact. Explain why your answer fits the situation.

WORKED EXAMPLE

A class has 27 paintbrushes and gets 18 more. How many paintbrushes does the class have now?

1. Know: 27 paintbrushes and 18 more. Find the total.
2. Plan: Add because the class gets more.
3. $27 + 18 = 45$.
4. Check: $30 + 20$ is about 50, so 45 is reasonable.

Answer: 45 paintbrushes

PRACTICE 5 problems

- 1** The library cart has 36 books. A teacher adds 14 books. State your plan, solve, and check with an estimate.

ANSWER _____

- 2** Noah puts 63 stickers into 7 equal prize bags. State your plan, solve, and check with multiplication.

ANSWER _____

- 3** A movie lasts 84 minutes. Sam has watched 29 minutes. State your plan, solve, and check with an estimate.

ANSWER _____

- 4** A coach buys 6 packs of 8 juice boxes. The team needs 50 juice boxes. State your plan, solve, and tell whether there are enough.

ANSWER _____

- 5** Riley reads 96 pages in 4 days, reading the same number each day. State your plan, solve, and check.

ANSWER _____

APPLY IT Show your work

- 1** The craft club needs 90 beads for a project. Use the table. State a plan, find how many more beads are needed, and explain why your answer is reasonable.

CRAFT CLUB BEADS

Color	Beads
Blue	36
Green	22
Silver	15

ANSWER _____

- 2** At a school game, 8 teams collect 24 cans each. They give 37 cans to the food pantry, then pack the rest equally into 5 bins. Make a plan, find the number of cans in each bin, and check your answer.

WORK SPACE

ANSWER _____

CHALLENGE One step up

A game shop packs 7 boxes with 34 trading cards in each box. It gives away 58 cards. Lena says 180 cards remain. Is Lena correct? Show a plan, solve, and explain how you checked.

WORK SPACE AND ANSWER

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	The library cart has 36 books. A teacher adds 14 books. State your plan, solve, and check with an estimate.	Add: $36 + 14 = 50$. Estimate $40 + 10 = 50$, so 50 is reasonable.
2	Noah puts 63 stickers into 7 equal prize bags. State your plan, solve, and check with multiplication.	Divide: $63 \div 7 = 9$. Check: $9 \times 7 = 63$.
3	A movie lasts 84 minutes. Sam has watched 29 minutes. State your plan, solve, and check with an estimate.	Subtract: $84 - 29 = 55$. Estimate $80 - 30 = 50$, so 55 is reasonable.
4	A coach buys 6 packs of 8 juice boxes. The team needs 50 juice boxes. State your plan, solve, and tell whether there are enough.	Multiply: $6 \times 8 = 48$. There are not enough, because $50 - 48 = 2$ more juice boxes are needed.
5	Riley reads 96 pages in 4 days, reading the same number each day. State your plan, solve, and check.	Divide: $96 \div 4 = 24$. Check: $4 \times 24 = 96$.

PART 2 • APPLY IT

- $36 + 22 + 15 = 73$ beads. $90 - 73 = 17$ more beads are needed. An estimate of 80 beads means about 10 more are needed, so 17 is reasonable.** Add the three bead amounts, then subtract the total from 90. Estimate the total as about 80 to check that 17 more is sensible.
- 31 cans in each bin. $8 \times 24 = 192$, $192 - 37 = 155$, and $155 \div 5 = 31$. Check: $5 \times 31 + 37 = 192$.** Multiply to find all cans, subtract the donated cans, then divide the remaining cans among 5 bins. Check by multiplying the bin amount and adding 37.

CHALLENGE

Yes. $7 \times 34 = 238$, and $238 - 58 = 180$. Check: $180 + 58 = 238$, so Lena is correct.

Accept correct operation plans and equivalent written checks. Students may use compatible-number estimates or inverse operations when the calculation and conclusion are correct.