LESSON MAKER PRO

Quantity Sense Lab

Turn real situations into equations that make sense.

GRADE 7 · 7.MP.2

7.MP.2 "Reason abstractly and quantitatively."

NAME _____ DATE _____

CONNECT NUMBERS TO MEANING

Start by naming what each number measures, such as dollars, minutes, or items. Write an equation that matches the situation, then solve it while keeping track of units. Check whether your answer is reasonable by estimating or using the inverse operation.

WORKED EXAMPLE

A school store sells 8 stickers for $1.75 each. What is the total cost?

1. Let c be the total cost in dollars.
2. Write c = 8 x 1.75.
3. Multiply: c = 14.00 dollars.
4. Check: 8 groups of less than $2 cost less than $16, so $14 makes sense.

Answer: $14.00

PRACTICE 6 problems

1 A music app downloads 6 songs that are 4.5 MB each. Let m be the total size in MB. Write an equation, find m, and check by estimating.

ANSWER _____

2 A runner has 52 minutes for training and uses 3/13 of the time to warm up. Let w be the warm-up time. Write an equation and find w.

ANSWER _____

3 A game character starts with 42 coins and spends 17 coins on an upgrade. Let c be the number of coins left. Write an equation and find c.

ANSWER _____

4 A 3.6-meter ribbon is cut into 9 equal lengths for a club project. Let l be the length of each piece. Write an equation and find l.

ANSWER _____

5 A phone battery is at 72% and then gains 15 percentage points while charging. Let b be the new battery level. Write an equation and find b.

ANSWER _____

6 The art club packs 28 markers into boxes that hold 7 markers each. Let x be the number of boxes needed. Write an equation, find x, and check by multiplying.

ANSWER _____

APPLY IT Show your work

1 Jordan has $45 for a school dance. A ticket costs $12, and each snack costs $3.50. Jordan buys a ticket and 3 snacks. How much money is left? Write an equation and use the units to check your answer.

WORK SPACE

ANSWER _____

2 A cycling app records 18.6 km over 3 days. The rider travels 5.4 km on the first day and 6.8 km on the second day. How far does the rider travel on the third day? Write an equation and explain what each part represents.

WORK SPACE

ANSWER _____

CHALLENGE One step up

A gaming center offers two plans for 7 games. Plan A costs $9 admission plus $2.25 per game. Plan B costs $18 admission, includes 4 games, and charges $1.50 for each additional game. Write an equation for each plan. Which plan costs less, and by how much? Explain which games are included in Plan B.

WORK SPACE AND ANSWER

ANSWER KEY

Quantity Sense Lab

GRADE 7 · 7.MP.2

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	A music app downloads 6 songs that are 4.5 MB each. Let m be the total size in MB. Write an equation, find m, and check by estimating.	**m = 27 MB. 6 x 4.5 = 27, and 6 x about 5 MB is about 30 MB.**
2	A runner has 52 minutes for training and uses 3/13 of the time to warm up. Let w be the warm-up time. Write an equation and find w.	**w = 12 minutes. w = (3/13) x 52 = 12.**
3	A game character starts with 42 coins and spends 17 coins on an upgrade. Let c be the number of coins left. Write an equation and find c.	**c = 25 coins. c = 42 - 17 = 25.**
4	A 3.6-meter ribbon is cut into 9 equal lengths for a club project. Let l be the length of each piece. Write an equation and find l.	**l = 0.4 m. l = 3.6 / 9 = 0.4.**
5	A phone battery is at 72% and then gains 15 percentage points while charging. Let b be the new battery level. Write an equation and find b.	**b = 87%. b = 72% + 15 percentage points = 87%.**
6	The art club packs 28 markers into boxes that hold 7 markers each. Let x be the number of boxes needed. Write an equation, find x, and check by multiplying.	**x = 4 boxes. x = 28 / 7 = 4, and 4 x 7 = 28 markers.**

PART 2 · APPLY IT

1. **$22.50 is left.** Let b = 45 - 12 - 3(3.50). Then b = 22.50 dollars, so the remaining amount has the correct unit.
2. **6.4 km** Let d = 18.6 - (5.4 + 6.8). The first two days total 12.2 km, so d = 6.4 km for the third day.

CHALLENGE

Plan A: 9 + 7(2.25) = $24.75. Plan B: 18 + 3(1.50) = $22.50. Plan B costs $2.25 less because its $18 admission includes the first 4 games, so only 3 games cost extra.

Accept equivalent equations and correct currency formatting, including $27 instead of $27.00. Students should label quantities with appropriate units and may use a reasonable estimate or inverse operation for a check.