LESSON MAKER PRO

Quantities in Action

Model real situations with numbers, units, and equations.

GRADE 8 · 8.MP.2

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

NAME _____ DATE _____

MAKE QUANTITIES MEANINGFUL

First, identify what each number measures and include its unit. Use a variable for an unknown quantity, write an equation that matches the situation, and solve. Then check whether your answer makes sense in the context.

WORKED EXAMPLE

The drama club sells 17 buttons for $6 each. Write an equation for the total amount earned, then find the total.

1. Let t represent the total dollars earned.
2. Write t = 17 x 6.
3. Multiply to get t = 102.

Answer: $102

PRACTICE 6 problems

1 At an arcade, each game costs 5 tokens. Maya plays 8 games. Write an equation for t, solve, and check that the unit fits the situation.

ANSWER _____

2 A reader has 63 pages left in a book and reads 9 pages each day. Write an equation for d, then find how many days the reading will take.

ANSWER _____

3 A phone plan costs $14 each month plus $3 for each gigabyte of data used. If a student uses 5 gigabytes, write an equation for c and find the monthly cost.

ANSWER _____

4 A student has saved $38 for a pair of shoes that costs $95. The student earns $19 for each bracelet sold. Write and solve an equation to find how many bracelets must be sold.

ANSWER _____

5 A 2-minute video uses 150 MB of storage. At the same rate, how much storage will a 7-minute video use? Write an equation and label your answer.

ANSWER _____

6 A bus travels 84 miles in 2 hours at a constant speed. Write an equation for m, then find how far it travels in 5 hours.

ANSWER _____

APPLY IT Show your work

1 Jordan has a $50 gift card for an online music store. Jordan buys headphones for $24 and 3 music downloads that cost $7 each. Does the gift card cover the purchase? How much money is left? Write an expression or equation to show your reasoning.

WORK SPACE

ANSWER _____

2 A digital art app charges $8 each month plus $3 for each sticker pack. A different app charges $23 for a month with any number of sticker packs. At how many sticker packs do the two apps cost the same? Write an equation and check your answer.

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

A student has 8 GB of free storage on a tablet. A video project already uses 3.2 GB, and each new clip will use 1.2 GB. What is the greatest whole number of new clips the student can add? Write an inequality and explain why your answer fits the storage limit.

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_____

ANSWER KEY

Quantities in Action

GRADE 8 · 8.MP.2

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	At an arcade, each game costs 5 tokens. Maya plays 8 games. Write an equation for t, solve, and check that the unit fits the situation.	**t = 5(8) = 40 tokens**
2	A reader has 63 pages left in a book and reads 9 pages each day. Write an equation for d, then find how many days the reading will take.	**d = 63/9 = 7 days**
3	A phone plan costs $14 each month plus $3 for each gigabyte of data used. If a student uses 5 gigabytes, write an equation for c and find the monthly cost.	**c = 14 + 3(5) = $29**
4	A student has saved $38 for a pair of shoes that costs $95. The student earns $19 for each bracelet sold. Write and solve an equation to find how many bracelets must be sold.	**38 + 19x = 95; x = 3 bracelets**
5	A 2-minute video uses 150 MB of storage. At the same rate, how much storage will a 7-minute video use? Write an equation and label your answer.	**s = (150/2)(7) = 525 MB**
6	A bus travels 84 miles in 2 hours at a constant speed. Write an equation for m, then find how far it travels in 5 hours.	**m = (84/2)(5) = 210 miles**

PART 2 · APPLY IT

1. **Yes. $5 is left.** The total cost is 24 + 3(7) = 45 dollars. Since 50 - 45 = 5, the gift card covers the purchase.
2. **5 sticker packs** Set 8 + 3x equal to 23, which gives x = 5. Checking gives 8 + 3(5) = 23.

CHALLENGE

4 clips. 3.2 + 1.2x <= 8 gives x <= 4, and 3.2 + 1.2(4) = 8 GB, so 4 clips fit exactly.

Accept equivalent equations and expressions when the quantities and units are correct. For explanation items, accept clear reasoning that connects the equation or inequality to the real-world limit.