LESSON MAKER PRO

Equation Quest

Use equal groups to find unknown amounts.

GRADE 3 · 3.PAR.3.7

3.PAR.3.7 "Use multiplication and division to solve problems involving whole numbers to 100. Represent these problems using equations with a letter standing for the unknown quantity. Justify solutions."

NAME _____ DATE _____

FIND THE UNKNOWN

Use multiplication when equal groups are put together. Use division when a total is shared into equal groups. Write an equation with a letter for the amount you do not know, then check that the equation is true.

WORKED EXAMPLE

A gardener plants 4 rows of 6 tulips. How many tulips are planted?

1. Let t stand for the total number of tulips.
2. Write the equation: 4 x 6 = t.
3. Multiply: 4 x 6 = 24.
4. Check: 24 tulips make 4 equal rows of 6.

Answer: t = 24

PRACTICE 6 problems

1 A puzzle has 27 pieces put into 3 equal piles. Let n stand for the number of pieces in each pile. Write an equation, solve, and check.

ANSWER _____

2 An arcade game gives 8 tickets for each win. You have 64 tickets. Let n stand for the number of wins. Write an equation, solve, and check.

ANSWER _____

3 A game gives 11 points for each level completed. A player earns 88 points. Let n stand for the number of levels. Write an equation, solve, and check.

ANSWER _____

4 A teacher shares 96 cards equally among 12 players. Let n stand for the number of cards each player gets. Write an equation, solve, and check.

ANSWER _____

5 A craft club puts 63 beads on 9 equal strings. Let n stand for the number of beads on each string. Write an equation, solve, and check.

ANSWER _____

6 A player earns 35 points in 5 equal rounds. Let n stand for the points earned each round. Write an equation, solve, and check.

ANSWER _____

APPLY IT Show your work

1 At school game day, 72 players form equal teams of 9 players. Let t stand for the number of teams. Write an equation, solve, and write a sentence that explains why your answer is correct.

WORK SPACE

ANSWER _____

2 Jada opens 7 sticker packs. Each pack has the same number of stickers, and she has 84 stickers altogether. Let s stand for the number of stickers in each pack. Write an equation, solve, and write a sentence that explains why your answer is correct.

WORK SPACE

ANSWER _____

CHALLENGE One step up

A bracelet maker has 84 beads. Each bracelet needs 7 beads. After making as many bracelets as possible, she gives 3 bracelets to friends. How many bracelets does she have left? Let b stand for the number of bracelets made. Write an equation, solve, and explain your reasoning.

WORK SPACE AND ANSWER

ANSWER KEY

Equation Quest

GRADE 3 · 3.PAR.3.7

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	A puzzle has 27 pieces put into 3 equal piles. Let n stand for the number of pieces in each pile. Write an equation, solve, and check.	**3 x n = 27; n = 9. Check: 3 x 9 = 27.**
2	An arcade game gives 8 tickets for each win. You have 64 tickets. Let n stand for the number of wins. Write an equation, solve, and check.	**8 x n = 64; n = 8. Check: 8 x 8 = 64.**
3	A game gives 11 points for each level completed. A player earns 88 points. Let n stand for the number of levels. Write an equation, solve, and check.	**11 x n = 88; n = 8. Check: 11 x 8 = 88.**
4	A teacher shares 96 cards equally among 12 players. Let n stand for the number of cards each player gets. Write an equation, solve, and check.	**12 x n = 96; n = 8. Check: 12 x 8 = 96.**
5	A craft club puts 63 beads on 9 equal strings. Let n stand for the number of beads on each string. Write an equation, solve, and check.	**9 x n = 63; n = 7. Check: 9 x 7 = 63.**
6	A player earns 35 points in 5 equal rounds. Let n stand for the points earned each round. Write an equation, solve, and check.	**5 x n = 35; n = 7. Check: 5 x 7 = 35.**

PART 2 · APPLY IT

1. **9 x t = 72; t = 8.** Explanation: 9 x 8 = 72, so 8 teams use all 72 players. Use 9 x t = 72 because each team has 9 players. Divide 72 by 9 to find 8 teams, then check with multiplication.
2. **7 x s = 84; s = 12.** Explanation: 7 x 12 = 84, so each pack has 12 stickers. Use 7 x s = 84 because there are 7 equal packs. Divide 84 by 7 to find 12 stickers per pack, then check with multiplication.

CHALLENGE

7 x b = 84; b = 12. Then 12 - 3 = 9. She has 9 bracelets left because 7 x 12 = 84, and she gave away 3 of the 12 bracelets.

Accept equivalent equations with the factors or sides reversed, such as 27 = 3 x n, and equivalent division equations. Students should use a letter for the unknown and give a correct multiplication check or explanation.