LESSON MAKER PRO

Quotient Quest

Estimate, divide, and check your results

GRADE 6 · 6.NOS.B.2

6.NOS.B.2 "Fluently divide multi-digit numbers. Extend estimation strategies to estimate and assess the reasonableness of quotients. Use strategies (e.g., partial quotients, inverse relationship between multiplication and division) to divide..."

NAME _____ DATE _____

DIVIDE AND CHECK

First, use nearby numbers to estimate the quotient. Then subtract multiples of the divisor, add the partial quotients, and multiply to check your answer.

WORKED EXAMPLE

Find 2,916 / 27.

1. Estimate: 3,000 / 25 = 120, so expect a quotient near 120.
2. 27 x 100 = 2,700; 2,916 - 2,700 = 216.
3. 27 x 8 = 216; 216 - 216 = 0.
4. Add the partial quotients: 100 + 8 = 108. Check: 108 x 27 = 2,916.

Answer: 108

PRACTICE 6 problems

1 Find 4,536 / 36.

ANSWER _____

2 Find 6,732 / 22.

ANSWER _____

3 Find 8,232 / 28.

ANSWER _____

4 Find 7,776 / 48.

ANSWER _____

5 Estimate 5,984 / 32 using 6,000 / 30. Then find the exact quotient. Is your estimate reasonable?

ANSWER _____

6 Find 8,640 / 45. Choose the standard algorithm or inverse multiplication. Explain why your choice is efficient.

ANSWER _____

APPLY IT Show your work

1 An esports club divides 7,488 points equally among 24 teams. How many points does each team get? Estimate first to check your answer.

WORK SPACE

ANSWER _____

2 At a school film festival, 9,936 tickets were scanned across 36 showings. Each showing had the same number of tickets scanned. How many tickets were scanned at each showing? Check with multiplication.

WORK SPACE

ANSWER _____

CHALLENGE One step up

A game gives out 14,688 badges equally to 48 players. One student predicts 306 badges per player; another predicts 360. Which prediction is correct? Use an estimate and a multiplication check to explain.

WORK SPACE AND ANSWER

ANSWER KEY

Quotient Quest

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PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Find 4,536 / 36.	**126**
2	Find 6,732 / 22.	**306**
3	Find 8,232 / 28.	**294**
4	Find 7,776 / 48.	**162**
5	Estimate 5,984 / 32 using 6,000 / 30. Then find the exact quotient. Is your estimate reasonable?	**Estimate: 200. Exact quotient: 187. Yes, 200 is close to 187.**
6	Find 8,640 / 45. Choose the standard algorithm or inverse multiplication. Explain why your choice is efficient.	**192. Inverse multiplication is efficient because 45 x (200 - 8) = 9,000 - 360 = 8,640.**

PART 2 · APPLY IT

1. **312 points per team; an estimate is 300 points per team.** Estimate with 7,200 / 24 = 300. Then divide: 7,488 / 24 = 312, which is close to the estimate.
2. **276 tickets per showing; 276 x 36 = 9,936.** Divide 9,936 / 36 = 276. Multiplying 276 x 36 gives 9,936.

CHALLENGE

306 badges per player. The estimate 15,000 / 50 = 300 supports 306, and 48 x 306 = 14,688. In contrast, 48 x 360 = 17,280.

Accept any accurate division method. Estimates may vary if they use nearby numbers and support the reasonableness of the exact quotient.