LESSON MAKER PRO

Quotient Reality Check

Estimate quotients and decide which answers make sense.

GRADE 5 · 5.NOS.D.16.a

5.NOS.D.16.a "Apply estimation strategies to estimate quotients and assess reasonableness of answers."

NAME _____ DATE _____

USE A FRIENDLY NUMBER

To estimate a quotient, replace the number being divided with a nearby number that divides evenly by the divisor. Divide the friendly number, then use your estimate to check whether an answer is reasonable.

WORKED EXAMPLE

Estimate 523 / 6.

1. 522 is close to 523 and divides evenly by 6.
2. 522 / 6 = 87.
3. Since 523 is slightly greater than 522, the quotient is slightly greater than 87.

Answer: About 87

PRACTICE 6 problems

1 Estimate 437 / 8 using 440 as the friendly number.

ANSWER _____

2 Estimate 692 / 7 using 700 as the friendly number.

ANSWER _____

3 Estimate 1,187 / 12 using 1,200 as the friendly number.

ANSWER _____

4 Estimate 2,039 / 25 using 2,000 as the friendly number.

ANSWER _____

5 A student says 769 / 11 is about 90. Estimate using 770, then tell whether 90 is reasonable.

ANSWER _____

6 A student says 1,434 / 16 is about 90. Estimate using 1,440, then tell whether 90 is reasonable.

ANSWER _____

APPLY IT Show your work

1 An arcade has 983 prize tickets to split evenly among 14 winners. Use 980 to estimate how many tickets each winner gets. Is 100 tickets per winner a reasonable estimate?

WORK SPACE

ANSWER _____

2 At a school book fair, 1,516 stickers will be split evenly among 19 prize bags. Use 1,520 to estimate how many stickers go in each bag. Is 80 stickers per bag a reasonable estimate?

WORK SPACE

ANSWER _____

CHALLENGE One step up

A school plans to share 3,986 pencils equally among 39 teams. A student estimates 10 pencils per team. Use 4,000 and 40 to estimate the quotient, then explain in two sentences whether 10 is reasonable.

WORK SPACE AND ANSWER

ANSWER KEY

Quotient Reality Check

GRADE 5 · 5.NOS.D.16.a

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Estimate 437 / 8 using 440 as the friendly number.	**About 55**
2	Estimate 692 / 7 using 700 as the friendly number.	**About 100**
3	Estimate 1,187 / 12 using 1,200 as the friendly number.	**About 100**
4	Estimate 2,039 / 25 using 2,000 as the friendly number.	**About 80**
5	A student says 769 / 11 is about 90. Estimate using 770, then tell whether 90 is reasonable.	**770 / 11 = 70, so 90 is not reasonable.**
6	A student says 1,434 / 16 is about 90. Estimate using 1,440, then tell whether 90 is reasonable.	**1,440 / 16 = 90, so 90 is reasonable.**

PART 2 · APPLY IT

1. **About 70 tickets per winner. No, 100 tickets per winner is not reasonable.** 980 / 14 = 70, which is far from 100.
2. **About 80 stickers per bag. Yes, 80 stickers per bag is reasonable.** 1,520 / 19 = 80, so the proposed estimate is reasonable.

CHALLENGE

Using 4,000 and 40, I estimate 4,000 / 40 = 100 pencils per team. Ten pencils per team is not reasonable because it is much less than 100.

For problems that name a friendly number, look for the quotient of that number and the given divisor. Accept equivalent wording for reasonableness judgments when the estimate and conclusion are correct.