

Quotient Quest

Estimate first, then divide with confidence.

GRADE 5 • 5.CE.3.c.i

5.CE.3.c.i "Estimate and determine the quotient of two numbers using strategies and algorithms, including the standard algorithm, in which:* quotients do not exceed four digits with or without a decimal point;"

NAME _____

DATE _____

ESTIMATE AND DIVIDE

First, choose compatible numbers to make a quick estimate. Then use the standard algorithm: divide, multiply, subtract, and bring down. When the dividend has a decimal point, place the decimal point straight up in the quotient.

WORKED EXAMPLE

$$864 \div 24$$

1. Estimate: $960 \div 24 = 40$.
2. 24 goes into 86 three times. Write 3, then subtract 72 to get 14.
3. Bring down 4 to make 144.
4. 24 goes into 144 six times.

Answer: 36

PRACTICE 6 problems

- 1** Use compatible numbers to estimate. Then divide: $735 \div 5$

ANSWER _____

- 2** Use compatible numbers to estimate. Then divide: $1,428 \div 12$

ANSWER _____

- 3** Use compatible numbers to estimate. Then divide: $3,276 \div 28$

ANSWER _____

- 4** Use compatible numbers to estimate. Then divide: $9.6 \div 3$

ANSWER _____

- 5** Use compatible numbers to estimate. Then divide: $7.56 \div 6$

ANSWER _____

- 6** Use compatible numbers to estimate. Then divide: $4,536 \div 18$

ANSWER _____

APPLY IT Show your work

- 1** The media club has 1,536 photos to place on digital slideshow pages. Each page holds 12 photos. Estimate how many pages they will need, then find the exact number of full pages.

WORK SPACE

ANSWER _____

- 2** The art club has 18.9 meters of ribbon. They cut it into 7 equal strips for spirit banners. Estimate the length of each strip, then find the exact length.

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

A robotics team has 2,475.2 centimeters of wire. They cut it into 16 equal pieces. Estimate and find the exact length of each piece. Explain how you can check your quotient.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Use compatible numbers to estimate. Then divide: $735 \div 5$	Estimate: $700 \div 5 = 140$; quotient: 147
2	Use compatible numbers to estimate. Then divide: $1,428 \div 12$	Estimate: $1,440 \div 12 = 120$; quotient: 119
3	Use compatible numbers to estimate. Then divide: $3,276 \div 28$	Estimate: $3,360 \div 28 = 120$; quotient: 117
4	Use compatible numbers to estimate. Then divide: $9.6 \div 3$	Estimate: $9 \div 3 = 3$; quotient: 3.2
5	Use compatible numbers to estimate. Then divide: $7.56 \div 6$	Estimate: $7.2 \div 6 = 1.2$; quotient: 1.26
6	Use compatible numbers to estimate. Then divide: $4,536 \div 18$	Estimate: $4,500 \div 18 = 250$; quotient: 252

PART 2 • APPLY IT

- Estimate: 120 pages; exact: 128 full pages** Choose 1,440 as a compatible number because $1,440 \div 12 = 120$. Then divide $1,536 \div 12$ to get 128.
- Estimate: 2.5 meters; exact: 2.7 meters** Use 17.5 as a compatible number: $17.5 \div 7 = 2.5$. Then divide $18.9 \div 7$ to get 2.7.

CHALLENGE

Estimate: 155 centimeters; exact: 154.7 centimeters. Check by multiplying 154.7 by 16, which equals 2,475.2.

Accept reasonable compatible-number estimates that are close to the exact quotient. Require correct quotient placement of the decimal point and standard-algorithm work for each division problem.