LESSON MAKER PRO

Decimal Decisions

Multiply, divide, and check decimal answers

GRADE 6 · 6.NOS.B.3

6.NOS.B.3 "Fluently multiply and divide multi-digit decimals to the thousandths in context. Extend estimation strategies to estimate and assess the reasonableness of products and quotients..."

NAME _____ DATE _____

PLACE, DIVIDE, CHECK

To multiply decimals, multiply as if the factors were whole numbers. Then count the decimal places in both factors and put that many decimal places in the product. To divide by a decimal, multiply both numbers by the same power of 10 until the divisor is a whole number, then divide and check with an estimate.

WORKED EXAMPLE

Find 3.24 x 1.5.

1. Multiply without decimal points: 324 x 15 = 4860.
2. The factors have 3 decimal places in all, so the product is 4.860.
3. Check: 3 x 1.5 = 4.5, which is close to 4.860.

Answer: 4.86

PRACTICE 6 problems

1 Find 2.375 x 1.2.

ANSWER _____

2 Find 0.48 x 3.25.

ANSWER _____

3 Find 6.04 x 0.35.

ANSWER _____

4 Find 7.56 / 0.6.

ANSWER _____

5 Estimate using 9 / 2.5, then find the exact value of 8.775 / 2.5.

ANSWER _____

_____

6 Estimate using 4.8 / 0.12, then find the exact value of 4.536 / 0.12.

ANSWER _____

_____

APPLY IT Show your work

1 You need 0.375 meter of cord for each friendship bracelet. How many meters of cord do you need for 14 bracelets?

WORK SPACE

ANSWER _____

2 A club has 5.04 liters of juice. Each cup holds 0.24 liter. How many full cups can the club fill?

WORK SPACE

ANSWER _____

CHALLENGE One step up

A gaming club has 12.48 meters of cable. Each setup needs 0.16 meter. Estimate the number of setups using 12 / 0.15, then find the exact number. For the exact answer, which is more efficient: repeatedly subtracting 0.16 or changing the division to whole numbers? Explain why.

WORK SPACE AND ANSWER

ANSWER KEY

Decimal Decisions

GRADE 6 · 6.NOS.B.3

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Find 2.375 x 1.2.	**2.85**
2	Find 0.48 x 3.25.	**1.56**
3	Find 6.04 x 0.35.	**2.114**
4	Find 7.56 / 0.6.	**12.6**
5	Estimate using 9 / 2.5, then find the exact value of 8.775 / 2.5.	**Estimate: 3.6; exact value: 3.51**
6	Estimate using 4.8 / 0.12, then find the exact value of 4.536 / 0.12.	**Estimate: 40; exact value: 37.8**

PART 2 · APPLY IT

1. **5.25 meters** Multiply 0.375 x 14 = 5.250. You need 5.25 meters of cord.
2. **21 full cups** Multiply both numbers by 100 to divide 504 / 24 = 21.

CHALLENGE

Estimate: 80 setups. Exact answer: 78 setups. Changing to whole-number division is more efficient because multiplying both numbers by 100 gives 1248 / 16 = 78 without changing the quotient.

The two practice estimates use the expressions given, so accept 3.6 and 40. In the challenge, accept explanations that correctly scale both numbers by 100 and identify whole-number division as the more efficient method.