LESSON MAKER PRO

Close Enough?

Estimate products and quotients, then check whether answers make sense.

GRADE 6 · 6.NOS.B.3.a

6.NOS.B.3.a "Extend estimation strategies to estimate and assess the reasonableness of products and quotients."

NAME _____ DATE _____

ESTIMATE TO CHECK

Round numbers to make a product or quotient easier to find. Compare your estimate with a proposed answer. A proposed answer that is much larger or smaller than your estimate may not be reasonable.

WORKED EXAMPLE

Estimate 47.8 × 6.2. Is 29.636 a reasonable product?

1. Round 47.8 to the nearest ten: 50.
2. Round 6.2 to the nearest whole number: 6.
3. Multiply: 50 × 6 = 300. The proposed product is much smaller than 300.

Answer: About 300; no, 29.636 is not reasonable.

PRACTICE 6 problems

1 Round each factor to the nearest whole number. Estimate 29.4 × 3.8.

ANSWER _____

2 Round 68.2 to the nearest ten and 7.1 to the nearest whole number. Estimate 68.2 × 7.1.

ANSWER _____

3 Round 182 to the nearest ten and 9.2 to the nearest whole number. Estimate 182 ÷ 9.2.

ANSWER _____

4 Round 423 to the nearest ten and 7.1 to the nearest whole number. Estimate 423 ÷ 7.1.

ANSWER _____

5 Round each factor to the nearest whole number to estimate 18.9 × 8.1. Is 153.09 a reasonable product? Give your estimate and answer yes or no.

ANSWER _____

6 Round 598 to the nearest hundred and 2.9 to the nearest whole number to estimate 598 ÷ 2.9. Is 2,062 a reasonable quotient? Give your estimate and answer yes or no.

ANSWER _____

APPLY IT Show your work

1 A student edits 8 clips that are each 12.4 minutes long. Round 12.4 to the nearest whole number to estimate their total length. Is 99.2 minutes a reasonable total?

WORK SPACE

ANSWER _____

2 A gaming club shares 765 bonus points equally among 18 teams. Round 765 to the nearest hundred and 18 to the nearest ten to estimate the points per team. Is 425 points per team reasonable?

WORK SPACE

ANSWER _____

CHALLENGE One step up

A game update is 2,478 MB and downloads in 31 seconds. Someone claims the speed is about 800 MB per second. Use two different pairs of compatible numbers to estimate the speed. Explain whether the claim is reasonable.

WORK SPACE AND ANSWER

ANSWER KEY

Close Enough?

GRADE 6 · 6.NOS.B.3.a

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Round each factor to the nearest whole number. Estimate 29.4 × 3.8.	**29 × 4 = 116**
2	Round 68.2 to the nearest ten and 7.1 to the nearest whole number. Estimate 68.2 × 7.1.	**70 × 7 = 490**
3	Round 182 to the nearest ten and 9.2 to the nearest whole number. Estimate 182 ÷ 9.2.	**180 ÷ 9 = 20**
4	Round 423 to the nearest ten and 7.1 to the nearest whole number. Estimate 423 ÷ 7.1.	**420 ÷ 7 = 60**
5	Round each factor to the nearest whole number to estimate 18.9 × 8.1. Is 153.09 a reasonable product? Give your estimate and answer yes or no.	**19 × 8 = 152; yes.**
6	Round 598 to the nearest hundred and 2.9 to the nearest whole number to estimate 598 ÷ 2.9. Is 2,062 a reasonable quotient? Give your estimate and answer yes or no.	**600 ÷ 3 = 200; no.**

PART 2 · APPLY IT

1. **About 96 minutes; yes.** Round 12.4 to 12, then multiply 8 × 12 = 96. Since 99.2 is close to 96, it is reasonable.
2. **About 40 points per team; no.** Divide 800 ÷ 20 = 40. The proposed 425 points per team is far larger than the estimate.

CHALLENGE

2,400 ÷ 30 = 80 and 2,480 ÷ 31 = 80, so the speed is about 80 MB per second. The claim of 800 MB per second is not reasonable.

Accept estimates written with or without their rounded-number calculations. In the challenge, accept other pairs of nearby compatible numbers that support a rate of about 80 MB per second.