LESSON MAKER PRO

Benchmark Check

Estimate fraction sums and differences, then check what makes sense.

GRADE 5 · 5.NOS.C.8.a

5.NOS.C.8.a "Estimate sums and differences by reasoning about benchmark numbers and assess reasonableness of answers (e.g., 2/3 + 3/4 will be more than 1 because both fractions are greater than 1/2)."

NAME _____ DATE _____

USE NEARBY BENCHMARKS

To estimate with fractions, replace each fraction with a nearby benchmark: 0, 1/2, or 1. Add or subtract the benchmarks. An estimate helps you check whether an answer is reasonable, but it does not have to equal the exact answer.

WORKED EXAMPLE

Estimate 9/20 + 19/20 using benchmarks.

1. 9/20 is near 1/2.
2. 19/20 is near 1.
3. Add the benchmarks: 1/2 + 1 = 1 1/2.

Answer: Benchmark estimate: 1 1/2

PRACTICE 6 problems

1 Estimate 7/8 + 5/8. Write the benchmark equation and its answer.

ANSWER _____

2 Estimate 1/10 + 4/9. Write the benchmark equation and its answer.

ANSWER _____

3 Estimate 6/7 - 1/12. Write the benchmark equation and its answer.

ANSWER _____

4 Estimate 5/6 - 3/7. Write the benchmark equation and its answer.

ANSWER _____

5 Estimate 11/12 + 2/9. Write the benchmark equation and its answer.

ANSWER _____

6 Estimate 7/13 - 5/11. Write the benchmark equation and its answer.

ANSWER _____

APPLY IT Show your work

1 Mia biked 9/10 mile to the park and 7/9 mile around it. A friend says she biked about 1/2 mile in all. Estimate the total using benchmarks. Is her friend's answer reasonable? Explain.

WORK SPACE

ANSWER _____

2 A game download is 11/12 GB. So far, 1/8 GB has downloaded. A friend says about 1/4 GB is left to download. Estimate how much is left using benchmarks. Is the friend's answer reasonable? Explain.

WORK SPACE

ANSWER _____

CHALLENGE One step up

A student says 8/9 + 7/8 is about 1. Use 3/4 to explain why 1 is not a reasonable estimate. Then give a better estimate using benchmarks 0, 1/2, or 1.

WORK SPACE AND ANSWER

ANSWER KEY

Benchmark Check

GRADE 5 · 5.NOS.C.8.a

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Estimate 7/8 + 5/8. Write the benchmark equation and its answer.	**1 + 1/2 = 1 1/2**
2	Estimate 1/10 + 4/9. Write the benchmark equation and its answer.	**0 + 1/2 = 1/2**
3	Estimate 6/7 - 1/12. Write the benchmark equation and its answer.	**1 - 0 = 1**
4	Estimate 5/6 - 3/7. Write the benchmark equation and its answer.	**1 - 1/2 = 1/2**
5	Estimate 11/12 + 2/9. Write the benchmark equation and its answer.	**1 + 0 = 1**
6	Estimate 7/13 - 5/11. Write the benchmark equation and its answer.	**1/2 - 1/2 = 0**

PART 2 · APPLY IT

1. **9/10 + 7/9 is about 1 + 1 = 2 miles. No, 1/2 mile is not reasonable.** Both distances are near 1 mile, so their total is near 2 miles, not 1/2 mile.
2. **11/12 - 1/8 is about 1 - 0 = 1 GB. No, 1/4 GB is not reasonable.** The total is near 1 GB, and the downloaded part is near 0 GB, so the amount left is near 1 GB.

CHALLENGE

Both 8/9 and 7/8 are greater than 3/4, so their sum is greater than 1 1/2. An estimate of 1 is too low. Using benchmarks, 1 + 1 = 2 is a better estimate.

Practice answers are benchmark estimates, not exact sums or differences. Accept a different estimate if the student clearly explains why the chosen benchmarks are reasonable.