LESSON MAKER PRO

Estimate and Check

Use integer estimates to spot reasonable results.

GRADE 7 · 7.N.2.1

7.N.2.1 "Estimate solutions to multiplication and division of integers in order to assess the reasonableness of results."

NAME _____ DATE _____

ESTIMATE BEFORE YOU DECIDE

Round numbers to nearby friendly numbers, then multiply or divide to estimate. Use the sign rules, too: a reasonable result has the right sign and is close to your estimate. An estimate can show that an answer is reasonable, but it cannot prove the answer is exact.

WORKED EXAMPLE

Is -912 a reasonable result for (-48) × 19?

1. Round -48 to -50 and 19 to 20.
2. Multiply: (-50) × 20 = -1,000.
3. Compare: -912 is negative and close to -1,000.

Answer: Yes, -912 is reasonable.

PRACTICE 6 problems

1 A student says (-31) × 18 = -558. Round both factors to the nearest ten. What is your estimate, and is the student's answer reasonable?

ANSWER _____

2 A student says -243 / 31 = -81. Round both numbers to the nearest ten. What is your estimate, and is the student's answer reasonable?

ANSWER _____

3 A student says (-63) × (-11) = 693. Round both factors to the nearest ten. What is your estimate, and is the student's answer reasonable?

ANSWER _____

4 A student says -298 / -29 = -10. Round both numbers to the nearest ten. What is your estimate, and is the student's answer reasonable?

ANSWER _____

5 A student says (-72) × 31 = -2,242. Round both factors to the nearest ten. What is your estimate, and is the student's answer reasonable?

ANSWER _____

6 A student says 357 / -41 = -87. Round both numbers to the nearest ten. What is your estimate, and is the student's answer reasonable?

ANSWER _____

APPLY IT Show your work

1 You lose 27 points in each of 23 rounds of a game. A friend says your total score change is +621 points. Estimate the total change. Is your friend's answer reasonable?

WORK SPACE

ANSWER _____

2 A team's score drops 588 points over 21 identical penalty rounds. A teammate says each round changes the score by -29 points. Estimate the change per round. Is that answer reasonable?

WORK SPACE

ANSWER _____

CHALLENGE One step up

One student reports (-397) × (-52) = 2,064. Another reports 20,644. Without finding the exact product, round -397 to the nearest hundred and -52 to the nearest ten. Which report is reasonable? Explain in two sentences.

WORK SPACE AND ANSWER

ANSWER KEY

Estimate and Check

GRADE 7 · 7.N.2.1

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	A student says (-31) × 18 = -558. Round both factors to the nearest ten. What is your estimate, and is the student's answer reasonable?	**Estimate: (-30) × 20 = -600. Yes, -558 is reasonable.**
2	A student says -243 / 31 = -81. Round both numbers to the nearest ten. What is your estimate, and is the student's answer reasonable?	**Estimate: -240 / 30 = -8. No, -81 is much too far from -8.**
3	A student says (-63) × (-11) = 693. Round both factors to the nearest ten. What is your estimate, and is the student's answer reasonable?	**Estimate: (-60) × (-10) = 600. Yes, 693 is reasonable.**
4	A student says -298 / -29 = -10. Round both numbers to the nearest ten. What is your estimate, and is the student's answer reasonable?	**Estimate: -300 / -30 = 10. No, the student's answer has the wrong sign.**
5	A student says (-72) × 31 = -2,242. Round both factors to the nearest ten. What is your estimate, and is the student's answer reasonable?	**Estimate: (-70) × 30 = -2,100. Yes, -2,242 is reasonable, though the exact product is -2,232.**
6	A student says 357 / -41 = -87. Round both numbers to the nearest ten. What is your estimate, and is the student's answer reasonable?	**Estimate: 360 / -40 = -9. No, -87 is much too far from -9.**

PART 2 · APPLY IT

1. **About -600 points. No, the total change must be negative.** Estimate (-27) × 23 with (-30) × 20 = -600. The exact change is -621 points, not +621.
2. **About -30 points per round. Yes, -29 is reasonable.** Estimate -588 / 21 with -600 / 20 = -30. The exact change is -28 points per round, so the reasonable answer is not exact.

CHALLENGE

The estimate is (-400) × (-50) = 20,000, which is positive. The report of 20,644 is reasonable because it is close to 20,000.

Accept other sensible nearby estimates when students explain the sign and size of the result. In problem 5 and the second word problem, a reasonable reported result is not the exact result.