

Estimate Detective

Use rounding to decide whether answers make sense.

GRADE 3 • NY-3.OA.8.b

NY-3.OA.8.b "Assess the reasonableness of answers using mental computation and estimation strategies including rounding."

NAME _____

DATE _____

CHECK WITH AN ESTIMATE

Round numbers to nearby tens when it makes the math easier. Then multiply, divide, add, or subtract with the rounded numbers. Compare your estimate to the exact answer to see whether the answer is reasonable.

WORKED EXAMPLE

A supply cart has 37 packs of markers with 9 markers in each pack. It also has 16 loose markers. Is a total of 349 markers reasonable?

1. Round 37 to 40 and 16 to 20.
2. Estimate: $40 \times 9 + 20 = 380$.
3. Find the product: $37 \times 9 = 333$.
4. Add: $333 + 16 = 349$.

Answer: Yes. 349 is close to the estimate of 380.

PRACTICE 6 problems

- 1** A student buys 23 packs of stickers with 3 stickers in each pack. The student also gets 14 bonus stickers. Which is a better estimate for the total, 70 or 140?

ANSWER _____

- 2** A shop packs 54 boxes with 5 keychains in each box. Then the shop gives away 21 keychains. Is an answer of 249 keychains reasonable? Write an estimate.

ANSWER _____

- 3** A game store has 31 boxes with 6 cards in each box. It adds 28 loose cards. Sam says there are 214 cards. Is Sam's answer reasonable? Use rounded numbers.

ANSWER _____

- 4** A team shares 72 beads equally among 8 players. Each player then gets 19 more beads. Jules says each player gets 28 beads. Is this reasonable? Write an estimate.

ANSWER _____

- 5** A craft table has 44 bracelets with 2 beads on each bracelet. Then 15 beads are removed. Which is a better estimate for the beads left, 60 or 120?

ANSWER _____

- 6** A teacher shares 63 cards equally among 7 groups. Then each group gets 46 more cards. Which is a better estimate for the number of cards in each group, 60 or 100?

ANSWER _____

APPLY IT Show your work

- 1** At a robotics club, 27 teams build 4 paper gliders each. Then the club makes 35 extra gliders. Ava says the club made 143 gliders. Find the exact total. Then tell whether Ava's answer is reasonable using an estimate.

WORK SPACE

ANSWER _____

- 2** A pet shelter puts 84 cans of food equally into 6 donation boxes. Then it puts 29 more cans into each box. Diego says each box has 43 cans. Find the exact number of cans in each box. Then tell whether Diego's answer is reasonable.

WORK SPACE

ANSWER _____

CHALLENGE One step up

A movie club fills 49 boxes with 7 popcorn bags in each box. Then it adds 52 extra popcorn bags. Mika says the total is about 700 popcorn bags. Is Mika's estimate reasonable? Explain using a better estimate and the exact answer.

WORK SPACE AND ANSWER

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	A student buys 23 packs of stickers with 3 stickers in each pack. The student also gets 14 bonus stickers. Which is a better estimate for the total, 70 or 140?	70
2	A shop packs 54 boxes with 5 keychains in each box. Then the shop gives away 21 keychains. Is an answer of 249 keychains reasonable? Write an estimate.	Yes; about 230 keychains.
3	A game store has 31 boxes with 6 cards in each box. It adds 28 loose cards. Sam says there are 214 cards. Is Sam's answer reasonable? Use rounded numbers.	Yes; $30 \times 6 + 30 = 210$, which is close to 214.
4	A team shares 72 beads equally among 8 players. Each player then gets 19 more beads. Jules says each player gets 28 beads. Is this reasonable? Write an estimate.	Yes; $72 \div 8 + 20 = 29$, which is close to 28.
5	A craft table has 44 bracelets with 2 beads on each bracelet. Then 15 beads are removed. Which is a better estimate for the beads left, 60 or 120?	60
6	A teacher shares 63 cards equally among 7 groups. Then each group gets 46 more cards. Which is a better estimate for the number of cards in each group, 60 or 100?	60

PART 2 • APPLY IT

- 143 gliders; yes, it is reasonable. An estimate is $30 \times 4 + 40 = 160$.** Multiply 27 by 4, then add 35 to get 143. Rounding gives an estimate of 160, which is close enough to support the exact answer.
- 43 cans; yes, it is reasonable. An estimate is $84 \div 6 + 30 = 44$.** Divide 84 by 6, then add 29 to get 43. Using 30 for 29 gives an estimate of 44, which is close to 43.

CHALLENGE

No. A better estimate is $50 \times 7 + 50 = 400$. The exact total is $49 \times 7 + 52 = 395$, so 700 is not reasonable.

Accept estimates that use sensible rounding or compatible numbers and support the reasonableness decision. Exact totals must match the answers shown.