Estimating Sums and Differences

Estimation means rounding first, then doing the math. The answer is close to the real one, but quick to find — great for double-checking your work or for "about how many?" questions.

How to Estimate
1. Round each number to the same place (usually the nearest ten or hundred).
2. Add or subtract the rounded numbers.
3. The result is an *estimate* — close to the exact answer, but not exact.

Key Concepts

1. **Estimating** gives a number close to the exact answer. It is fast, and it is perfect for sanity-checking your work.

2. Always round each number to the *same* place before adding or subtracting. Mixing rounded and exact numbers leads to messy answers.

3. The bigger the place you round to, the rougher the estimate. Rounding to the hundreds is faster than rounding to the tens, but less precise.

4. Estimates use "≈" (read as "about" or "approximately equal to") instead of "=".

Worked Examples

① Estimate $472 + 315$ by rounding to the nearest hundred.

First round each number to the nearest hundred. 472 rounds to 500 (the tens digit, 7, is at least 5). 315 rounds to 300 (the tens digit, 1, is less than 5). Now add the rounded numbers: $500 + 300 = 800$. So $472 + 315 \approx 800$. (The exact answer is 787 — our estimate is very close.)

Answer: ≈ 800

② Estimate $863 - 478$ by rounding to the nearest hundred.

Round each number. 863 rounds to 900 (tens digit $6 \geq 5$, so round up). 478 rounds to 500 (tens digit $7 \geq 5$, round up). Now subtract: $900 - 500 = 400$. So $863 - 478 \approx 400$. (Exact: 385 — the estimate is in the right ballpark.)

Answer: ≈ 400

③ Estimate $47 + 68$ by rounding to the nearest ten.

For smaller numbers, the nearest ten gives a better estimate than the nearest hundred. 47 rounds to 50 (ones digit $7 \geq 5$). 68 rounds to 70 (ones digit $8 \geq 5$). Add: $50 + 70 = 120$. So $47 + 68 \approx 120$. (Exact: 115.)

Answer: ≈ 120

Practice Problems

Estimate each by rounding to the nearest hundred unless told otherwise.

1. Estimate $348 + 221$ _____
2. Estimate $587 + 314$ _____
3. Estimate $726 - 289$ _____
4. Estimate $451 + 368$ _____
5. Estimate $815 - 492$ _____
6. Estimate $639 + 274$ _____
7. Estimate $903 - 558$ _____
8. Estimate $167 + 482$ _____
9. Estimate $745 - 312$ _____
10. Estimate $294 + 538$ _____
11. Estimate $612 - 187$ _____
12. Estimate $436 + 389$ _____

Study Tips

- ☞ Think of estimation as a "quick check." Do it **before** solving exactly so you know roughly what the answer should be.
- ☞ For numbers under 100, round to the nearest ten. For numbers in the hundreds, round to the nearest hundred. That keeps the estimate close to the real answer.
- ☞ If your exact answer is very different from your estimate, look back — one of them probably has a mistake.

✍ Word Problems

1. A bakery made 482 cookies on Monday and 319 cookies on Tuesday. About how many cookies were made in all? Estimate by rounding to the nearest hundred.

Answer: _____

2. A store has 736 apples and sells 289. About how many apples are left? Estimate by rounding to the nearest hundred.

Answer: _____

Answer Key — with Friendly Explanations

Practice Problems

1. $348 \to 300$ and $221 \to 200$. Add: $300 + 200$.

Answer: ≈ 500

2. $587 \to 600$ and $314 \to 300$. Add: $600 + 300$.

Answer: ≈ 900

3. $726 \to 700$ and $289 \to 300$. Subtract: $700 - 300$.

Answer: ≈ 400

4. $451 \to 500$ and $368 \to 400$. Add: $500 + 400$.

Answer: ≈ 900

5. $815 \to 800$ and $492 \to 500$. Subtract: $800 - 500$.

Answer: ≈ 300

6. $639 \to 600$ and $274 \to 300$. Add: $600 + 300$.

Answer: ≈ 900

7. $903 \to 900$ and $558 \to 600$. Subtract: $900 - 600$.

Answer: ≈ 300

8. $167 \to 200$ and $482 \to 500$. Add: $200 + 500$.

Answer: ≈ 700

9. $745 \to 700$ and $312 \to 300$. Subtract: $700 - 300$.

Answer: ≈ 400

10. $294 \to 300$ and $538 \to 500$. Add: $300 + 500$.

Answer: ≈ 800

11. $612 \to 600$ and $187 \to 200$. Subtract: $600 - 200$.

Answer: ≈ 400

12. $436 \to 400$ and $389 \to 400$. Add: $400 + 400$.

Answer: ≈ 800

Word Problems

1. $482 \to 500$, $319 \to 300$. Sum $= 800$. About 800 cookies.

Answer: ≈ 800 *cookies*

2. $736 \to 700$, $289 \to 300$. Difference $= 400$. About 400 apples.

Answer: ≈ 400 *apples*

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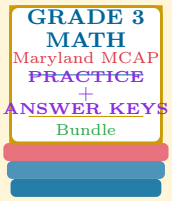

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