Estimation and Rounding

Name: _____ **Class:** _____ **Date:** _____

Quick Review

Rounding means replacing a number with a nearby value that is easier to work with.

Estimation means finding an approximate answer rather than an exact answer.

Rules for Rounding

1. Identify the place value you are rounding to.
2. Look at the digit immediately to the right.
3. If the digit is 5 or greater, round up.
4. If the digit is less than 5, keep the rounding digit the same.
5. Replace digits to the right with zeros for whole numbers, or remove unnecessary decimal digits.

Examples:

- 347 rounded to the nearest ten = 350
- 2,764 rounded to the nearest hundred = 2,800
- 8.46 rounded to the nearest tenth = 8.5
- 19.72 rounded to the nearest whole number = 20

Estimation is useful when shopping, planning journeys, checking calculations, and deciding whether an answer is reasonable.

Part A — Multiple Choice

Circle the correct answer.

1. What is 467 rounded to the nearest ten?

A. 460
B. 470
C. 500
D. 400

2. What is 3,849 rounded to the nearest hundred?

A. 3,800
B. 3,900
C. 4,000
D. 3,850

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3. What is 7.86 rounded to the nearest tenth?

A. 7.8
B. 7.0
C. 7.9
D. 8.0

4. Which is the best estimate of 198 + 403?

A. 400
B. 500
C. 800
D. 600

5. Why is estimation useful?

A. It always gives an exact answer.
B. It helps check whether calculations are reasonable.
C. It removes the need to understand numbers.
D. It makes all numbers larger.

Part B — Rounding Practice

Round each number to the specified place value.

Number	Round to	Answer
1. 583	Nearest ten	_____
2. 4,762	Nearest hundred	_____
3. 8,495	Nearest thousand	_____
4. 36.74	Nearest whole number	_____
5. 9.67	Nearest tenth	_____
6. 0.846	Nearest hundredth	_____
7. 12,349	Nearest hundred	_____
8. 65.995	Nearest hundredth	_____

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Part C — Estimating Calculations

Round the numbers as instructed, then calculate the estimated answer. Show your working.

1. Estimate 48 + 73 by rounding each number to the nearest ten.

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2. Estimate 296 + 412 by rounding each number to the nearest hundred.

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3. Estimate 39 × 21 by rounding each number to the nearest ten.

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4. Estimate 598 ÷ 29 using 600 ÷ 30.

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5. Estimate 18.7 + 32.4 by rounding each number to the nearest whole number.

Part D — Is the Estimate Reasonable?

Read each situation and answer the questions.

1. A student calculates 49 × 19 = 9,310.

a) Estimate the answer by rounding to the nearest ten.

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b) Is 9,310 a reasonable answer? Explain.

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2. A shop sells notebooks for $4.90 each. A student wants to buy 6 notebooks.

a) Estimate the total cost by rounding the price to the nearest dollar.

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b) Would $15 be a reasonable estimate? Explain.

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3. A bus travels 78 km on Monday and 123 km on Tuesday.

a) Estimate the total distance by rounding each distance to the nearest ten kilometres.

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b) Is an estimate of 500 km reasonable? Explain.

Part E — Real-World Applications

1. Shopping Budget

A student wants to buy:

- A backpack for $38.75
- A notebook for $6.40
- A calculator for $24.90

Estimate the total cost by rounding each price to the nearest dollar.

Estimated total: _____

Would a budget of $70 be enough for the actual prices? Explain.

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2. School Trip

A school has 187 students going on a trip. Each bus can carry 40 students.

a) Estimate how many buses are needed.

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b) Why must the number of buses be rounded up rather than down?

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3. Measuring Length

A student measures three pieces of wood:

- 24.7 cm
- 38.2 cm
- 16.9 cm

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Round each measurement to the nearest centimetre and estimate the total length.

Exit Ticket

1. Round 6,758 to the nearest hundred.

2. Estimate 82 × 29 by rounding to the nearest ten.

3. Give one everyday situation where estimation is useful.

4. Why should we check whether an estimated answer is reasonable?

5. Can an estimate be useful even when it is not exact? Explain.

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Estimation and Rounding — Answer Key

Part A — Multiple Choice

Question	Answer	Explanation
1	B — 470	467 rounds up to 470 because the ones digit is 7.
2	A — 3,800	3,849 rounds down to 3,800 because the tens digit is 4.
3	C — 7.9	7.86 rounds up to 7.9 because the hundredths digit is 6.
4	D — 600	198 ≈ 200 and 403 ≈ 400, so the estimate is 600.
5	B	Estimation helps check whether calculations are reasonable.

Part B — Rounding Practice

Question	Number	Round to	Answer
1	583	Nearest ten	580
2	4,762	Nearest hundred	4,800
3	8,495	Nearest thousand	8,000
4	36.74	Nearest whole number	37
5	9.67	Nearest tenth	9.7
6	0.846	Nearest hundredth	0.85
7	12,349	Nearest hundred	12,300
8	65.995	Nearest hundredth	66.00

Teacher note: For Question 8, 66.00 is preferred because it shows rounding to two decimal places. Numerically, 66 is equivalent.

Part C — Estimating Calculations

1. Estimate 48 + 73 by rounding each number to the nearest ten.

48 ≈ 50

73 ≈ 70

50 + 70 = 120

2. Estimate 296 + 412 by rounding each number to the nearest hundred.

296 ≈ 300

412 ≈ 400

300 + 400 = 700

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3. Estimate 39 × 21 by rounding each number to the nearest ten.

39 ≈ 40

21 ≈ 20

40 × 20 = 800

4. Estimate 598 ÷ 29 using 600 ÷ 30.

600 ÷ 30 = 20

5. Estimate 18.7 + 32.4 by rounding each number to the nearest whole number.

18.7 ≈ 19

32.4 ≈ 32

19 + 32 = 51

Part D — Is the Estimate Reasonable?

1. A student calculates 49 × 19 = 9,310.

a) Estimate the answer by rounding to the nearest ten.

49 ≈ 50

19 ≈ 20

50 × 20 = 1,000

b) Is 9,310 a reasonable answer? Explain.

No. The estimate is approximately 1,000, so 9,310 is much too large.

The actual answer is 49 × 19 = 931.

2. A shop sells notebooks for $4.90 each. A student wants to buy 6 notebooks.

a) Estimate the total cost by rounding the price to the nearest dollar.

$4.90 ≈ $5

6 × $5 = $30

b) Would $15 be a reasonable estimate? Explain.

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No. Six notebooks cost approximately $30, so $15 is too low.

The actual cost is $29.40.

3. A bus travels 78 km on Monday and 123 km on Tuesday.

a) Estimate the total distance by rounding each distance to the nearest ten kilometres.

78 ≈ 80 km

123 ≈ 120 km

80 + 120 = 200 km

b) Is an estimate of 500 km reasonable? Explain.

No. The total distance is approximately 200 km, so 500 km is much too high.

The actual total is 201 km.

Part E — Real-World Applications

1. Shopping Budget

Item	Actual price	Rounded price
Backpack	$38.75	$39
Notebook	$6.40	$6
Calculator	$24.90	$25
Total	$70.05	$70

Estimated total = $39 + $6 + $25 = $70

Would a budget of $70 be enough for the actual prices?

No. The actual total is $70.05, so the student would be short by $0.05.

This is a useful example of why estimates should be checked when working with a strict budget.

2. School Trip

187 students are going on a trip. Each bus holds 40 students.

a) Estimate how many buses are needed.

187 ÷ 40 = 4.675

The school needs 5 buses.

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b) Why must the number of buses be rounded up rather than down?

Because four buses would only carry 160 students, leaving 27 students without a seat.

A fifth bus is necessary even though the final bus will not be full.

3. Measuring Length

Measurement	Rounded to nearest cm
24.7 cm	25 cm
38.2 cm	38 cm
16.9 cm	17 cm
Estimated total	80 cm

25 + 38 + 17 = 80 cm

The actual total is 24.7 + 38.2 + 16.9 = 79.8 cm.

The estimate is very close to the actual value.

Exit Ticket

1. Round 6,758 to the nearest hundred.

6,800

The tens digit is 5, so the hundreds digit rounds up.

2. Estimate 82 × 29 by rounding to the nearest ten.

82 ≈ 80

29 ≈ 30

80 × 30 = 2,400

3. Give one everyday situation where estimation is useful.

Acceptable answers include:

- Estimating the total cost of groceries.
- Estimating how long a journey will take.
- Estimating the distance between two places.
- Estimating how much material is needed for a project.
- Estimating the number of buses required for a school trip.

4. Why should we check whether an estimated answer is reasonable?

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To identify possible calculation errors and determine whether the result makes sense in the situation.

For example, if five items each cost approximately $10, an estimated total of $500 would be unreasonable.

5. Can an estimate be useful even when it is not exact? Explain.

Yes. An estimate can help us make quick decisions, plan budgets, and check calculations without needing an exact answer.

For example, estimating that a shopping trip will cost approximately $50 can help someone decide how much money to bring.

Teacher Notes

- Part B, Question 3: Students may incorrectly round 8,495 to 9,000. The correct answer is 8,000 because the hundreds digit is 4.
- Part B, Question 8: The answer 66.00 demonstrates rounding to the nearest hundredth, including the carry through the decimal places.
- Part D: Encourage students to estimate before calculating exactly. This develops number sense and helps them identify unreasonable results.
- Part E, Question 1: Highlight that a rounded estimate of $70 does not guarantee that $70 will cover the exact cost.
- Part E, Question 2: This is an example of rounding up for a practical reason, rather than applying the usual nearest-whole-number rule.

Assessment focus: Students should demonstrate that they can round correctly, estimate calculations, evaluate whether answers are reasonable, and apply rounding appropriately in everyday situations.

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