Rounding Decimals

Rounding Decimals: Find, Fix, and Work Backward

Name _____ **Date** _____ **Score** _____ / 8

QUICK REVIEW

Find the two neighboring benchmarks for the requested place. Choose the closer one; at the midpoint choose the greater one. For hundredths, 4.376 is between 4.37 and 4.38, above midpoint 4.375, so it rounds to 4.38.

Worked example

Round 2.995 to the nearest hundredth.

1. The neighboring benchmarks are 2.99 and 3.00; their midpoint is 2.995.

2. 2.995 is at or above the midpoint, so choose the upper benchmark, 3.00.

Answer: 3.00.

Practice Problems

Show your thinking.

1. A student rounds 5.995 to 5.99 by always deleting digits. Is that result correct to the nearest hundredth?

2. Would 7.449 be reported as 7.4 when rounded to the nearest tenth? Show the benchmarks.

3. Locate 0.864 between its neighboring hundredth benchmarks and round to the nearest hundredth.

4. A student rounds 2.501 to 2 by always deleting digits. Is that result correct to the nearest whole number?

5. Give the smallest and largest three-place decimals that round to 2.34 to hundredths.

6. Fill the digit: $6.2a7$ rounds to 6.3 to tenths. Give every possible a.

7. A child rounds 1.449 first to hundredths, then to tenths, getting 1.5. Round directly to tenths and explain the difference.

8. Find two different three-place decimals rounding to 0.8 to tenths, one below and one above 0.8.

Answer Key

1. 6.00.
2. 7.4.
3. 0.86.
4. 3.
5. 2.335 and 2.344.
6. $5, 6, 7, 8, 9$.
7. Direct rounding gives 1.4.
8. For example, 0.799 and 0.801.

Step-by-Step Solutions

Follow each calculation, then check your own work.

Problem 1

1. The neighboring benchmarks are 5.99 and 6.00; their midpoint is 5.995.

2. 5.995 is at or above the midpoint, so choose the upper benchmark, 6.00.

Problem 2

1. The neighboring benchmarks are 7.4 and 7.5; their midpoint is 7.45.

2. 7.449 is below the midpoint, so choose the lower benchmark, 7.4.

Problem 3

1. The neighboring benchmarks are 0.86 and 0.87; their midpoint is 0.865.

2. 0.864 is below the midpoint, so choose the lower benchmark, 0.86.

Problem 4

1. The neighboring benchmarks are 2 and 3; their midpoint is 2.5.

2. 2.501 is at or above the midpoint, so choose the upper benchmark, 3.

Problem 5

1. The lower midpoint 2.335 rounds up to 2.34.

2. The upper midpoint 2.345 rounds to 2.35, so the largest permitted thousandth is $2.345 - 0.001 = 2.344$.

Problem 6

1. The hundredths digit controls rounding to tenths; it must be at least 5.

2. The smallest valid number 6.257 is above midpoint 6.25; the largest is $6.297 < 6.35$.

Problem 7

1. $1.449 < 1.45$, the midpoint between 1.4 and 1.5.

2. The intermediate 1.45 is not the original number; rounding it again gives 1.5. Use the original digits once.

Problem 8

1. $0.75 \leq 0.799 < 0.8$.

2. $0.8 < 0.801 < 0.85$; both fall in the rounding interval for 0.8.

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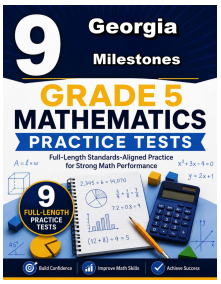

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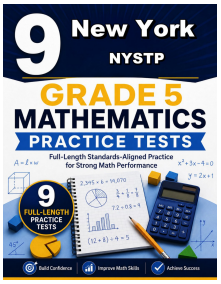

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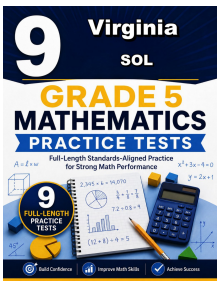

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