Rounding Decimals

Rounding Decimals: Apply, Compare, and Design

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 7.462 to the nearest hundredth.

1. The neighboring benchmarks are 7.46 and 7.47; their midpoint is 7.465.

2. 7.462 is below the midpoint, so choose the lower benchmark, 7.46.

Answer: 7.46.

Practice Problems

Show your thinking.

1. A rope measures 4.268 m. Record its length to the nearest hundredth of a meter.

2. A rope measures 0.952 m. Record its length to the nearest tenth of a meter.

3. Would 16.495 be reported as 16 when rounded to the nearest whole number? Show the benchmarks.

4. A student rounds 8.999 to 8.99 by always deleting digits. Is that result correct to the nearest hundredth?

5. A board must actually be at least 2.50 m. Its measured length is 2.496 m but its rounded label says 2.50 m. Does it meet the actual minimum?

6. Design a three-place measurement that rounds to 3.60 m to hundredths but is shorter than 3.60 m.

7. Two lengths are 4.246 m and 4.249 m. Do hundredth-meter labels distinguish them? Find their actual gap.

8. A sign shows a distance rounded to the nearest whole kilometer as 7 km. Can the actual distance be 7.6 km?

Answer Key

1. 4.27 m.
2. 1.0 m.
3. 16.
4. 9.00.
5. No; it is 0.004 m short.
6. For example, 3.596 m.
7. No; both labels say 4.25 m. Gap 0.003 m.
8. No; 7.6 rounds to 8 km.

Step-by-Step Solutions

Follow each calculation, then check your own work.

Problem 1

1. The neighboring benchmarks are 4.26 and 4.27; their midpoint is 4.265.

2. 4.268 is at or above the midpoint, so choose the upper benchmark, 4.27.

Problem 2

1. The neighboring benchmarks are 0.9 and 1.0; their midpoint is 0.95.

2. 0.952 is at or above the midpoint, so choose the upper benchmark, 1.0.

Problem 3

1. The neighboring benchmarks are 16 and 17; their midpoint is 16.5.

2. 16.495 is below the midpoint, so choose the lower benchmark, 16.

Problem 4

1. The neighboring benchmarks are 8.99 and 9.00; their midpoint is 8.995.

2. 8.999 is at or above the midpoint, so choose the upper benchmark, 9.00.

Problem 5

1. The actual measurement is $2.496 < 2.500$.

2. $2.500 - 2.496 = 0.004$ m; rounding does not lengthen the board.

Problem 6

1. The lower midpoint for 3.60 is 3.595.

2. $3.595 < 3.596 < 3.600$, so 3.596 rounds to 3.60 while being shorter.

Problem 7

1. Both values are at least midpoint 4.245 and below 4.255, so both round to 4.25.

2. $4.249 - 4.246 = 0.003$ m; equal rounded labels can hide different actual lengths.

Problem 8

1. The upper midpoint for a 7 km label is 7.5 km.

2. $7.6 > 7.5$, so choose 8 km rather than 7 km.

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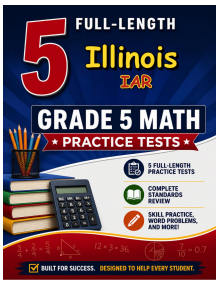

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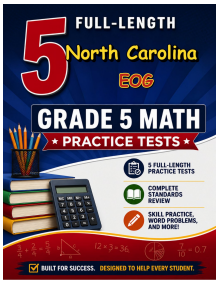

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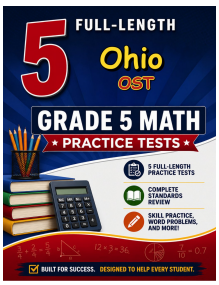

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