Unit 5, Lesson 10

Solve Problems with Decimals

Let's round and order decimals to solve problems.

Warm-up

Notice and Wonder: The Luge

What do you notice? What do you wonder?



A	B
48.532	82.13
48.561	82.75
48.626	82.81
48.634	83.07
48.708	82.80

Activity 1

How Accurate Is It?

The table shows the race times for 5 luge athletes.

athlete	time (seconds)
Athlete 1	48.532
Athlete 2	48.561
Athlete 3	48.626
Athlete 4	48.634
Athlete 5	48.708

1. How would the results of the race change if the times were recorded to the nearest second?

2. How would the results of the race change if the times were recorded to the nearest tenth of a second?

3. How would the results of the race change if the times were recorded to the nearest hundredth of a second?

4. An athlete records a time of 48.85 seconds to the nearest hundredth of a second. What could that time be if it was recorded to the thousandth of a second?

5. An athlete records a time of 48.615 seconds to the nearest thousandth of a second. What could that time be if it was recorded to the nearest hundredth of a second?

Activity 2

Compare Speeds

The table shows the top speeds of 5 luge athletes.

athlete	speed (miles per hour)
Athlete 1	82.13
Athlete 2	82.75
Athlete 3	82.81
Athlete 4	83.07
Athlete 5	82.80

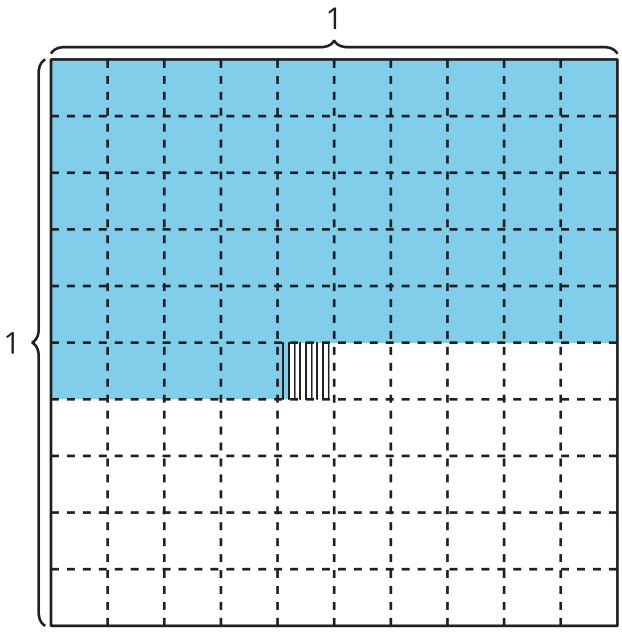
1. List the speeds in decreasing order.

2. Do any of these athletes have the same top speed if rounded to the nearest tenth of a mile per hour? To the nearest mile per hour?

3. A sixth athlete's top speed is faster than Athlete 5's but slower than Athlete 3's. What could the top speeds of these 3 athletes be if they were each measured to the nearest thousandth of a mile per hour?

Section A Summary

We represented decimals to the thousandths place.



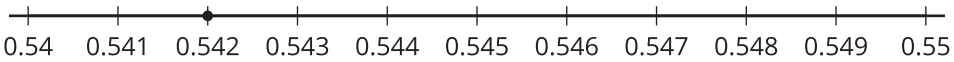
The shaded region of the diagram represents 0.542.

- The 5 shaded rows are each a tenth or 0.1
- The 4 shaded small squares are each a hundredth or 0.01.
- The 2 shaded tiny rectangles are each a thousandth or 0.001.

The decimal 0.542 can be represented in other ways.

- $\frac{542}{1{,}000}$
- five hundred forty-two thousandths
- $(5 \times 0.1) + (4 \times 0.01) + (2 \times 0.001)$

We also learned how to locate 0.542 on a number line.



The number line shows that 0.542 is closer to 0.54 than to 0.55. So, 0.542 rounded to the nearest hundredth is 0.54.