

Lesson 2-2

Wednesday, August 14, 2019 12:04 PM

Name _____



Solve & Share

An amusement park has two roller coasters. One is 628 feet long, and the other is 485 feet long. If you ride both roller coasters, about how many feet will you travel in all? *Use estimation to solve.*

Lesson 2-2 Estimate Sums and Differences

I can ...
estimate sums and differences of decimals.

I can also reason about math.

You can use **reasoning** to decide what you are asked to find. Is the problem looking for an exact answer? How can you tell?

My work:



Rounding
Round to the **greatest** place value. *

$$\begin{array}{r} 628 \rightarrow 600 \\ + 485 \rightarrow +500 \\ \hline 1,100 \end{array}$$

About 1,100 feet.

Compatible Numbers
Close numbers that are easy to work with.

$$\begin{array}{r} 628 \rightarrow 625 \\ + 485 \rightarrow +475 \\ \hline 1,100 \end{array}$$

About 1,100 ft.

Look Back! Model with Math About how much longer is the one coaster than the other? Show your work.

Rounding

$$\begin{array}{r} 628 \rightarrow 600 \\ - 485 \rightarrow -500 \\ \hline 100 \end{array}$$

About 100 ft

Compatible Numbers

$$\begin{array}{r} 628 \rightarrow 625 \\ - 485 \rightarrow -500 \\ \hline 125 \end{array}$$

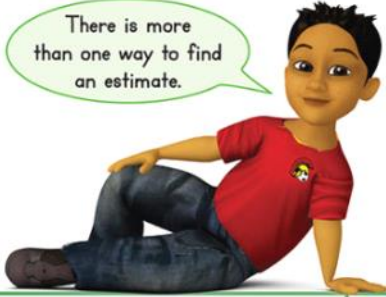
About 125 ft.

Essential Question: How Can You Estimate Sums?

A

Students are collecting dog food to give to an animal shelter. Estimate how many pounds were collected in Weeks 3 and 4.

There is more than one way to find an estimate.



| Week | Pounds of dog food |
|------|--------------------|
| 1 | 172.3 |
| 2 | 298 |
| 3 | 237.5 |
| 4 | 345.1 |
| 5 | 338 |

B One Way

Round each addend to the nearest hundred.

$$\begin{array}{r} 237.5 \rightarrow 200 \\ + 345.1 \rightarrow + 300 \\ \hline 500 \end{array}$$

$237.5 + 345.1$ is about 500.

The students collected about 500 pounds of dog food in Weeks 3 and 4.

C Another Way

Substitute compatible numbers.

$$\begin{array}{r} 237.5 \rightarrow 250 \\ + 345.1 \rightarrow + 350 \\ \hline 600 \end{array}$$

$237.5 + 345.1$ is about 600.

The students collected about 600 pounds of dog food in Weeks 3 and 4.

Compatible numbers are easy to add!



Convince Me! Critique Reasoning Tomás said, "We did great in Week 4! We collected just about twice as many pounds as in Week 1!"

Use estimation to decide if he is right. Explain your thinking.

$$\begin{array}{r} 172.3 \rightarrow 200 \\ + 172.3 \rightarrow + 200 \\ \hline 400 \end{array}$$

$$\begin{array}{r} 170 \\ + 170 \\ \hline 340 \end{array}$$

Week 4: 345.1
2 Week 1: 400
Maybe not with rounding
Yes with C.N.

Name _____

Another Example

You can estimate differences.

Estimate $22.8 - 13.9$.

One Way

Round each number to the nearest whole number.

$$\begin{array}{r} 22.8 \rightarrow 23 \\ - 13.9 \rightarrow - 14 \\ \hline 9 \end{array}$$

$22.8 - 13.9$ is about 9.

Another Way

Substitute compatible numbers.

$$\begin{array}{r} 22.8 \rightarrow 25 \\ - 13.9 \rightarrow - 15 \\ \hline 10 \end{array}$$

$22.8 - 13.9$ is about 10.

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☆ Guided Practice

Do You Understand?

1. **Construct Arguments** In the example above, which estimate is closer to the actual difference? How can you tell without subtracting?

Round was closer to the original numbers.

2. In the example on page 66, the students collected more pounds of dog food in Week 4 than in Week 3. Estimate about how many more.

Do You Know How?

In 3–10, estimate the sums and differences.

3. $49 + 22.88$ $50 + 20 = 70$
 4. $86.9 - 18$ $25 - 10 = 15$
 5. $179 + 277.1$
 6. $23.2 - 9.71$
 7. $23.8 - 4.7$ $24 - 5 = 19$
 8. $87.2 + 3.9$
 9. $38.9 - 21.4$
 10. $576 + 94.6$ $575 + 100 = 675$

Complete # 11, 15, 20 & 22

11. $79.1 + 32.4$

$80 + 30 = 110$

15. $2.9 + 3.9$

$3 + 4 = 7$

20. **Higher Order Thinking** A teacher is organizing a field trip. Each bus can seat up to 46 people. Is it better to estimate a greater or lesser number than the actual number of people going on the field trip? Why?

A greater number because you want to have too many seats instead of not having enough

seats instead of not having enough.

22. Three rock samples have masses of 74.05 grams, 9.72 grams, and 45.49 grams. A scientist estimates the total mass of the samples by rounding each mass to the nearest whole number. Which lists the numbers will he add?

- (A) 75, 10, and 46
- (B) 74.1, 9.7, and 45.5
- (C) 74, 10, and 45
- (D) 75, 10, and 50

| | | | | | | |
|---|---|---|---|---|---|----|
| 7 | 4 | . | 0 | 5 | → | 74 |
| - | 9 | . | 7 | 2 | → | 10 |
| 4 | 5 | . | 4 | 9 | → | 45 |

(C)