




Add and Subtract Decimals



Real-World Link

Swimming One event in competitive swimming is the women's 100-meter butterfly. The table shows the times of different swimmers at a recent Olympics.

Women's 100-Meter Butterfly

Swimmer's	Time (s)
 Lisbeth Trickett	56.73
 Christine Magnuson	?
 Gabriella Silva	58.10



Essential Question

HOW can estimating be helpful?

I Indiana Academic Standards
6.C.2

PS Process Standards
1, 2, 3, 4, 5, 6

You can use place value charts to compare the results.

- It took Christine Magnuson 0.37 second longer to finish than Lisbeth Trickett. What was Magnuson's time, in seconds?
- At a high school meet, a swimmer swam the women's 100-meter butterfly in 72.34 seconds. How many seconds faster did Gabriella Silva swim her race?

tens	ones	tenths	hundredths
5	6	7	3
+	0	3	7

tens	ones	tenths	hundredths
7	2	3	4
-	5	8	1



Which **PS** Process Standards did you use?

Shade the circle(s) that applies.

- | | |
|--|---|
| <input type="checkbox"/> ① Persevere with Problems | <input type="checkbox"/> ⑤ Use Math Tools |
| <input type="checkbox"/> ② Reason Abstractly | <input type="checkbox"/> ⑥ Attend to Precision |
| <input type="checkbox"/> ③ Construct an Argument | <input type="checkbox"/> ⑦ Make Use of Structure |
| <input type="checkbox"/> ④ Model with Mathematics | <input type="checkbox"/> ⑧ Use Repeated Reasoning |

Add Decimals

To add decimals, line up the decimal points. Then, add digits in the same place-value position.

Tutor

Examples

Accuracy

To find an accurate sum or difference, line up the digits based on their place values. Use the decimal point to help align the correct digits before completing the operation.

1. Find the sum of 23.1 and 5.8.

Estimate $23.1 + 5.8 \approx 23 + 6$ or 29

23.1 Line up the decimal points.

+ 5.8

28.9 Add as with whole numbers.

Check for Reasonableness $28.9 \approx 29$ ✓

The sum of 23.1 and 5.8 is 28.9.

2. Find the sum of 29.6 and 14.7.

Estimate $29.6 + 14.7 \approx$ + or

.

Line up the decimal points.

+ .

.

Add as with whole numbers.

Check for Reasonableness \approx

The sum of 29.6 and 14.7 is .

Show your work.

a. _____

b. _____

c. _____

Got it? Do these problems to find out.

Find each sum.

a. $54.7 + 21.4$

b. $14.2 + 23.5$

c. $17.3 + 33.5$

Subtract Decimals

To subtract decimals, line up the decimal points. Then, subtract digits in the same place-value position. You may need to *annex*, or place zeros at the end of a decimal, in order to subtract.

Tutor

Examples

3. Find the difference of 5.774 and 2.371.

Estimate $5.774 - 2.371 \approx 6 - 2$ or 4

5.774 Line up the decimal points.

$$\begin{array}{r} 5.774 \\ - 2.371 \\ \hline \end{array}$$

3.403 Subtract as with whole numbers.

Check for Reasonableness $3.403 \approx 4$ ✓

So, $5.774 - 2.371 = 3.403$.

4. Find $6 - 4.78$.

Estimate $6 - 4.78 \approx 6 - 5$ or 1

6.00 Annex zeros so that both numbers have the same number of decimal places.

$$\begin{array}{r} 6.00 \\ - 4.78 \\ \hline \end{array}$$

1.22

Check for Reasonableness $1.22 \approx 1$ ✓

So, $6 - 4.78 = 1.22$.

5. Find $23 - 4.216$.

Annex the zeros so that both numbers have the same number of decimal places.

Subtract as with whole numbers.

So, $23 - 4.216 =$ _____.

Got it? Do these problems to find out.

Find each difference.

d. $9.543 - 3.671$

e. $\$50.62 - \39.81

f. $14 - 9.09$

Show your work.

d. _____

e. _____

f. _____



Example

Tutor



6. Reagan is creating a video. The first video clip was 22.36 minutes long. The second video clip was 17.03 minutes long. What is the total length of the video?

Estimate $22.36 + 17.03 \approx 22 + 17$ or 39

$$\begin{array}{r} 22.36 \\ + 17.03 \\ \hline \end{array}$$

Line up the decimal points.

$$39.39$$

Add as with whole numbers.

Check for reasonableness $39.39 \approx 39$ ✓

So, the video is 39.39 minutes long.

Show your work.

g. _____

Got it? Do this problem to find out.

- g. Jonathan is traveling for work. This morning his GPS indicated that the total distance to his destination is 589.4 miles. Before lunch he drove 208.62 miles. How much farther does Jonathan need to travel?

Guided Practice

Check



Find each sum or difference. (Examples 1–5)

1. $14.7 + 87.9 =$ _____

2. $66.5 - 24.1 =$ _____

3. $52.1 - 31.47 =$ _____

Show your work.

4. Grayson is making a snack mix for his family camping trip. He added 14.52 ounces of peanuts to 27.35 ounces of granola. How many ounces of snack mix does he have?
(Example 6)
- _____
- _____

5. **Building on the Essential Question** How is estimation helpful when adding and subtracting decimals?
- _____
- _____
- _____

Rate Yourself!

I understand how to add and subtract decimals.

Great! You're ready to move on!

I still have questions about adding and subtracting decimals.

No Problem! Go online to access a Personal Tutor.

Tutor



Name _____

My Homework

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Independent Practice

Go online for Step-by-Step Solutions

**Find each sum.** (Examples 1 and 2)

1. $7.2 + 9.5 =$ _____

2. $1.34 + 2 =$ _____

3. $54.5 + 48.51 =$ _____

Show your work. →

Find each difference. (Examples 3-5)

4. $5.6 - 3.5 =$ _____

5. $97 - 16.98 =$ _____

6. $58.67 - 28.72 =$ _____

7. The table shows the top three finishers in barrel racing. What is the time difference between Nicolas and Sancho? (Example 6)
- _____

Barrel Racing Results	
Rider	Time (s)
Nicolas	14.67
Becki	15.98
Sancho	16.40

8. In two months, Mica spent a total of \$305.43 on groceries. She spent \$213.20 in the first month. How much did she spend in the second month? (Example 6)
- _____

9. **Financial Literacy** A hat costs \$10.95 and a T-shirt costs \$14.20. How much change will you receive if you pay for both items with a \$50 bill?
- _____

Show your work. →

10. **PS Use Math Tools** The 4-by-100 meter relay is a track and field event involving four runners on each team.

a. What is the combined time of Carter and Frater?

b. How much faster did Powell run his leg of the race than Bolt?

c. What is the combined time of all the runners?

4 by 100 Meter Times	
Runner	Time (s)
Carter	13.4
Frater	12
Bolt	12
Powell	11.7

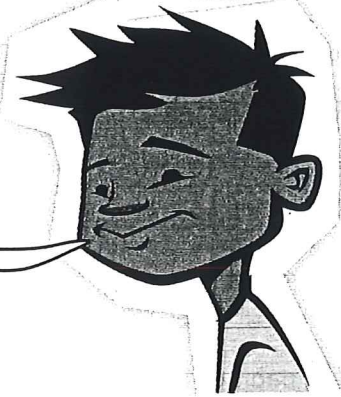
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H.O.T. Problems Higher Order Thinking

11. **PS Find the Error** Luis is finding $8.9 - 3.72$. Find his mistake and correct it.

$$\begin{array}{r} 8.9 \\ -3.72 \\ \hline 5.22 \end{array}$$



12. **PS Reason Abstractly** Write two different pairs of decimals whose sums are 14.1. One pair should involve regrouping.

13. **PS Reason Inductively** Explain how you know that the sum of 12.6, 3.1, and 5.4 is greater than 20.

14. **PS Persevere with Problems** Josie found that $3.28 + 3.28 + 3.28 = 9.84$. What is the missing factor in the related multiplication problem $3.28 \times \square = 9.84$? Explain.

15. **PS Reason Abstractly** Without subtracting $8.5 - 4.64$, determine what digit will be in the hundredths place. Explain.

16. **PS Reason Inductively** Kiera is buying the items shown at the right for her kitchen. Will \$35 be enough to purchase all three items? Explain your reasoning.

Item	Cost (\$)
mixing bowl	14.95
spatula	8.49
measuring cups	10.75