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Module 5 **Decimal Operations, Exponents, and Powers**
Lesson 3 **Adding and Subtracting Decimals**

Lesson Objectives

- Estimate decimal sums and differences using rounding and front-end estimation.
- Model addition and subtraction of decimals using diagrams and/or illustrations of manipulatives.
- Develop and use algorithms to add and to subtract numbers containing decimals (up to thousandths place).

Subtopic 1 Estimation of Decimal Sums and Differences

To estimate decimal sums and differences:

- Estimate the addends or the minuend and subtrahend.
- Find the sum or difference of the estimated numbers.

1 Diane has three \$10 bills. At the sporting goods store, she sees a baseball cap that costs \$14.95 and a tee shirt that costs \$12.45. Estimate the total cost of both items. If Diane has enough money to buy both items, estimate the change Diane would receive if she bought the items.

Baseball cap: \$14.95 ≈ \$15
Tee shirt: \$12.45 ≈ \$12
Total Cost ≈ \$27
Diane can afford both items.
\$30 - \$27 ≈ \$3 in change

2 Will sees three cookbooks in a bookstore. The books cost \$15.99, \$18.75, and \$22.25. Estimate the total cost of the three books. Can Will buy the books using only a \$50 bill?

\$15.99 ≈ \$16
\$18.75 ≈ \$19
\$22.25 ≈ \$22

The estimated cost is \$57. Will cannot afford the books.

Subtopic 2**Adding Decimals Using Models and the Standard Algorithm**

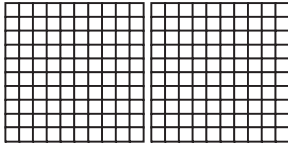
To add decimals:

- Write the addends in a column, lining up the **decimal points**.
- Add each **place value** and regroup as necessary.
- Put the decimal point in the answer in the **same position** as in the problem.

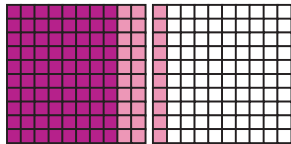
Find the sum.

3

$0.8 + 0.3$

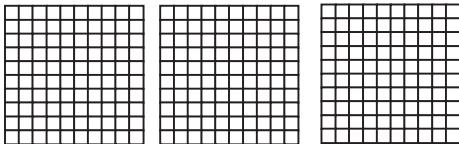


1.1

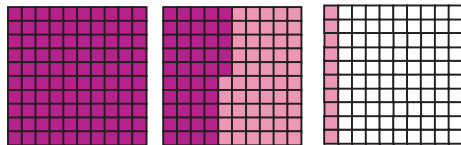


4

$1.45 + 0.65$



2.1



5

$3.57 + 0.6$

4.17

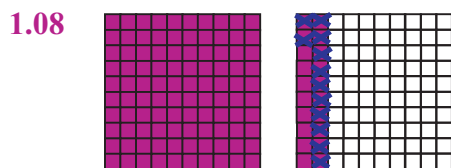
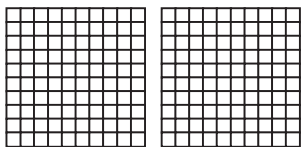
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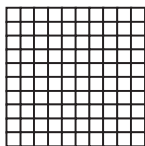
Subtopic 3 **Subtracting Decimals Using Models**

Subtract using a model.

6 $1.2 - 0.12$



7 $0.3 - 0.03$



Subtopic 4**Standard Decimal Subtraction****To subtract decimals:**

Write the numbers in a column, lining up the decimal points and like place values.

Subtract each place value and regroup if necessary.

Place the decimal point in the answer in the same position as in the problem.

Estimate and find the difference.

$$9.28 - 3.451$$

$$9.28 - 3.451 \approx 6$$

$$5.829$$



$$12.1 - 4.67$$

$$12.1 - 4.67 \approx 7$$

$$7.43$$