Name & Surname: _____ Class: _____ Date: _____

Decimal Operations

Add, subtract, multiply, and divide with confidence



About 45 minutes Level ★★★☆☆

Four Decimal Rules

Decimals work like whole numbers if you watch **place value** closely.

- Add or subtract: line up **decimal points**, add zeros to match places, then add or subtract and bring the point straight down.
- Multiply: multiply as **whole numbers**, then count total decimal places in the factors for the point in the product.
- Divide: move the **decimal point** to make the divisor whole, move the same in the dividend, then divide.

Task A

/3

Follow the worked steps, then try the matching problem yourself.

WORKED EXAMPLE

Work out 4.25 + 1.38

1. Line up decimal points: 4.25 over 1.38
2. Add hundredths: 5 + 8 = 13, write 3 carry 1
3. Add tenths and ones to get 5.63

Answer: 5.63

YOUR TURN

Work out 5.37 + 2.45

Answer: _____

WORKED EXAMPLE

Work out 2.4 × 1.3

1. Multiply as whole numbers: 24 × 13 = 312
2. Count decimal places: 1 + 1 = 2
3. Place point 2 from right: 3.12

Answer: 3.12

YOUR TURN

Work out 3.2 × 1.4

Answer: _____

WORKED EXAMPLE

Work out 4.8 ÷ 0.6

1. Move point 1 place in both: 48 ÷ 6
2. Divide as whole numbers: 48 ÷ 6 = 8
3. Estimate 5 ÷ 0.5 = 10, so 8 is sensible

Answer: 8

YOUR TURN

Work out 6.5 ÷ 0.5

Answer: _____

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Add and Subtract

Practice lining up and regrouping with decimals.

Key words

decimal point: dot that separates ones from tenths

difference: answer to subtraction

quotient: answer to division

sum: answer to addition

product: answer to multiplication

Task B

/12

Practice adding and subtracting by lining up place value.

WARM UP

1. Work out 3.45 + 2.31 for the **sum**.

   Answer: _____

2. Work out 7.8 - 4.2 for the **difference**.

   Answer: _____

3. Work out 5.6 + 1.27 for the **total**.

   Answer: _____

4. Work out 9.05 - 3.17 for the **remainder**.

   Answer: _____

PRACTICE

5. Work out 12.4 + 7.85. Show the **lined-up** addition.

   Answer: _____

6. Work out 15.2 - 6.75. Show the **regrouping**.

   Answer: _____

7. Work out 4.36 + 2.8 + 1.05 for the **combined** total.

   Answer: _____

8. Find the **missing** number: 6.3 + ? = 10.02

   Answer: _____

PROBLEM SOLVING

9. A student spent $3.45 on a notebook and $2.75 on pens. What is the **total** cost in dollars?

   Answer: _____

10. A water bottle held 2.5 liters. A student drank 1.35 liters. How many **liters** are left?

    Answer: _____

11. A student had $20.00. The student spent $7.85 on lunch and $5.25 on a book. How much **change** is left in dollars?

    Answer: _____

12. Explain how you **know** you must line up decimal points to add 4.2 + 3.35, not line up the last digits.

    Answer: _____

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Multiply and Divide

Practice standard algorithms for products and quotients.

Task C /12

Practice multiplying and dividing decimals accurately.

WARM UP

1. Work out 3.2 × 2 for the **product**.

Answer: _____

2. Work out 4.5 × 0.3 for the **product**.

Answer: _____

3. Work out 8.4 ÷ 4 for the **quotient**.

Answer: _____

4. Work out 7.5 ÷ 0.5 for the **quotient**.

Answer: _____

PRACTICE

5. Work out 2.56 × 3 for the **scaled** total.

Answer: _____

6. Work out 1.24 × 2.5 for the **area** result.

Answer: _____

7. Work out 9.6 ÷ 0.8 for the **equal** groups.

Answer: _____

8. Work out 5.52 ÷ 1.2 for the **precise** quotient.

Answer: _____

PROBLEM SOLVING

9. Four packs of pencils cost $2.75 each. What is the **total** cost in dollars?

Answer: _____

10. A runner ran 6.3 miles in 1.5 hours. What is the **average** speed in miles per hour?

Answer: _____

11. A recipe needs 0.75 cup of sugar for one batch. How much **sugar** is needed for 2.4 batches in cups?

Answer: _____

12. A student says 2.5 × 1.2 = 30.0. Explain how you **know** the decimal point is wrong.

Answer: _____

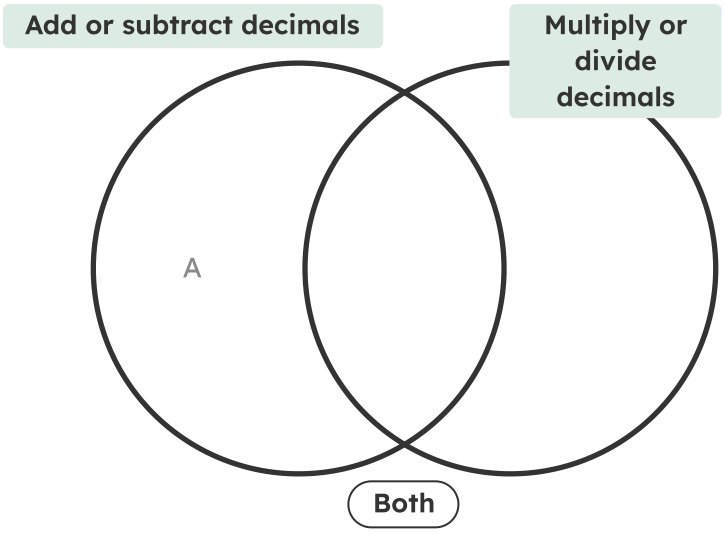
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Same or Different?

Sort the rules for decimal operations.

↑↓ Task D Example done for you /5

Sort each rule into adding and subtracting, multiplying and dividing, or both.



- **A** ~~Line up the **decimal points** before calculating~~
- **B** Add **zeros** as placeholders so places line up
- **C** Bring the **decimal point** straight down into the answer
- **D** Use an **estimate** to check the point is in a sensible place
- **E** Shift the **decimal point** in divisor and dividend to divide by a whole number
- **F** Count total **decimal places** in factors to place point in product

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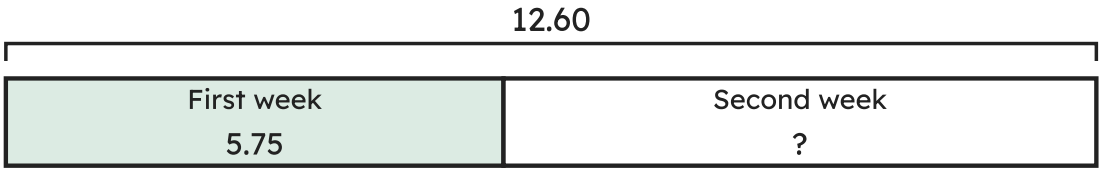
Show the Values

Use models and place value to show decimals.

Task E /6

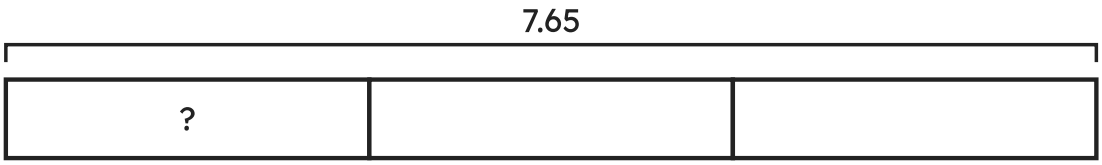
Use each bar model to find the missing decimal value.

1. A student saved $12.60 in two weeks. The first week the student saved $5.75. The rest was saved in the **second** week. How much was saved the second week?



Answer: _____ **dollars**

2. Three identical notebooks cost $7.65 in **total**. What is the cost of one notebook?



Answer: _____ **dollars**

3. One ribbon is 5.6 inches long. A second ribbon is 2.3 inches **shorter**. How long is the second ribbon?



Answer: _____ **inches**

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Decimal Operations

Task F /3

Write each digit in its correct place-value column.

Number	H	T	O	t	h	th
45.67						
8.304						
129.5						

H = hundreds · T = tens · O = ones · t = tenths · h = hundredths · th = thousandths

How did I do?

Circle a face for each line.

I can add and subtract decimals using place value. ☹ 😐 ☺

I can multiply decimals using the standard algorithm. ☹ 😐 ☺

I can divide decimals by making the divisor whole. ☹ 😐 ☺

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Answer sheet: Decimal Operations

Task A

1. 7.82
2. 4.48
3. 13

Task B

1. 5.76
2. 3.6
3. 6.87
4. 5.88
5. 20.25
6. 8.45
7. 8.21
8. 3.72
9. 6.20
10. 1.15
11. 6.90
12. You line up decimal points so tenths add to tenths and hundredths to hundredths. Lining up last digits would add 2 tenths to 5 hundredths, which have different values.

Task C

1. 6.4
2. 1.35
3. 2.1
4. 15
5. 7.68
6. 3.10
7. 12
8. 4.6
9. 11.00
10. 4.2
11. 1.8
12. 2.5 is between 2 and 3 and 1.2 is between 1 and 2, so the product is between 2 and 6. Counting places gives 1 + 1 = 2 places, so 300 becomes 3.00, not 30.0.

Task D

Add or subtract decimals only: A, B, C
Both: D
Multiply or divide decimals only: E, F

Task E

1. 6.85 dollars
2. 2.55 dollars
3. 3.3 inches

Task F

1. 45.67: – | 4 | 5 | 6 | 7 | –
2. 8.304: – | – | 8 | 3 | 0 | 4
3. 129.5: 1 | 2 | 9 | 5 | – | –

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