Decimal Operations Example

Decimal arithmetic uses a base-ten place-value system: each place to the right of the point is one tenth of the place before it. The system developed over centuries in India; no single person invented decimal numbers. Brahmagupta later described arithmetic rules for Indian numerals and zero. Aligning place values and tracking decimal places preserves the quantities being added, subtracted, multiplied, or divided.

Example

Calculate one example of each operation.

$$8.4 + 2.35;\ 8.4 - 2.35;\ 1.2 \times 0.5;\ 8.4 / 0.7$$

Step-by-step solution

STEP 1

Add by place value

Write 8.4 as 8.40 so tenths and hundredths align.

$$8.40 + 2.35 = 10.75$$

STEP 2

Subtract with regrouping

Subtract hundredths, tenths, and ones after aligning the decimal points.

$$8.40 - 2.35 = 6.05$$

STEP 3

Multiply, then place the decimal

12 x 5 = 60. There are two decimal places in the factors altogether.

$$1.2 \times 0.5 = 0.60 = 0.6$$

STEP 4

Make the divisor whole

Multiply both numbers by 10, which keeps the quotient unchanged.

$$8.4 / 0.7 = 84 / 7 = 12$$

ANSWER

10.75; 6.05; 0.6; and 12

The product 0.6 is half of 1.2. For division, 12 x 0.7 returns 8.4. Estimates also support the addition and subtraction results.

Use this worked example to review the method, then try a similar problem on your own.