Decimals: Division

Dividing a Decimal by a Whole Number:

When dividing a decimal by a whole number, place the decimal point in the quotient directly above the decimal point in the dividend.

$$\begin{array}{r} 5.48 \\ 5\overline{)27.4} \\ \underline{25} \\ 24 \\ \underline{20} \\ 40 \\ \underline{40} \\ 0 \end{array}$$ Continue dividing, by adding zeros, until the answer: 1 – terminates or 2 – reaches the place value you want to use for rounding (such as hundredths for the nearest tenth)	TRY: $8\overline{)47.8}$

Dividing Decimals by a Decimal:

When dividing a decimal by another decimal, move the decimal in the divisor to the right, making the divisor a whole number. Move the decimal point in the dividend to the right the same number of places, adding zeros as necessary. Divide as you would with whole numbers, placing the decimal point in the quotient directly above the decimal point of the new dividend.

Divide : 0.91728 ÷ .42 $.42\overline{)0.91728}$ $$\begin{array}{r} 2.184 \\ 42.\overline{)091.728} \\ \underline{84} \\ 77 \\ \underline{42} \\ 352 \\ \underline{336} \\ 168 \\ \underline{168} \\ 0 \end{array}$$ moved decimal right 2 places	TRY: $1.2\overline{)7.848}$

Dividing by Powers of 10:

When dividing decimals by powers of 10, move the decimal point in the original number to the left the same number of places as zeros in the powers-of-10 number. Add zeros as necessary.

Examples:

3649.3 ÷ 100 = 36.493 (decimal moved 2 places to the left)
$3649.3 \div 10^2 = 36.493$

394.2 ÷ 1000 = .3942 (decimal moved 3 places to the left)
$394.2 \div 10^3 = .3942$

5.7 ÷ 100000 = .000057 (decimal moved 5 places to the left and zeros added)
$5.7 \div 10^5 = .000057$

Notice how the number of places one moves the decimal to the left
is the same as the exponent of the power-of-10 term used for division.

TRY:

$23.5804 \div 100$ $4.59 \div 10^4$ $.0025 \div 10^7$

The rules for signs (the quotient of two numbers with the same sign is positive; the quotient of two numbers with opposite signs is negative) and the rules governing Order of Operations apply for decimals.

TRY:

$-15.75 \div 2.5$ $-11.02 \div -2.9$

$$3.4 - 2(4.6 - 6.4)^2 - 5.3 \bullet 3.2$$