

How to Teach Division of Fractions

1. The cost of 3 kilograms of meat is \$24. How much is one kilogram ?

$$24 \div 3 = 8$$

One kilogram is \$8.

2. The cost of 2 kilograms of meat is \$24. How much is one kilogram ?

$$24 \div 2 = 12$$

One kilogram is \$12.

Problems that look like:

The cost of x kilograms of meat is \$ y . How much is one kilogram?
are solved by dividing.

Let's try some problems involving fractions:

3. The price of $\frac{1}{2}$ kilogram of meat is \$6. How much is one kilogram?

It is clear that the answer is \$12. So we can write:

$$6 \div \frac{1}{2} = 12$$

Note that instead of dividing by $\frac{1}{2}$, we get the correct answer by multiplying by 2 (or $\frac{2}{1}$).

So
$$6 \div \frac{1}{2} = 6 \times \frac{2}{1}$$

4. The price of $\frac{2}{3}$ of a kilogram of meat is \$6. How much is one kilogram?

If $\frac{2}{3}$ of a kilogram costs \$6, then $\frac{1}{3}$ of a kilogram costs \$3, so one kilogram costs \$9.

So
$$6 \div \frac{2}{3} = 9$$

But
$$6 \times \frac{3}{2} = 9$$

So
$$6 \div \frac{2}{3} = 6 \times \frac{3}{2}$$

5. The price of $\frac{2}{5}$ of a kilogram of dog food is \$ $\frac{3}{4}$. How much is one kilogram?

If $\frac{2}{5}$ of a kilogram is \$ $\frac{3}{4}$ then $\frac{1}{5}$ of a kilogram is \$ $\frac{3}{8}$, so one kilogram costs $5 \times \frac{3}{8} = \$\frac{15}{8}$

So
$$\frac{3}{4} \div \frac{2}{5} = \frac{15}{8}$$

But
$$\frac{3}{4} \times \frac{5}{2} = \frac{15}{8}$$

So
$$\frac{3}{4} \div \frac{2}{5} = \frac{3}{4} \times \frac{5}{2}$$

It is obvious that the rule for dividing fractions is

Invert the second fraction, then multiply
