Math 104Q

The Conversion Rectangle Trick

Use: To answer questions of percentages, or convert from one kind of units to another.

Principle: Set up a rectangle where the top horizontal side represents the known conversion (or percentage), and the bottom horizontal side represents the wished for conversion (or percentage). Write a question mark for the quantity you want to find. Make sure, that the same kind of units are aligned vertically. To calculate the quantity you want to find, multiply the two corner numbers that are diagonally across each other, and divide by the corner number which is diagonally across the question mark.

Example 1. Find 35% of 811 lb

☺ Top horizontal side of rectangle represents the known, 811 is 100%: 811_____ 100
Bottom horizontal side of rectangle represents the wished for: ? _____ 35

☺ Here is the Conversion Rectangle.

811 _____ 100
| |
?_____ 35

Note that vertically lb is aligned with lb, and % with %.

☺ To find ?, multiply the two corner numbers which are diagonally across each other 811 x 35, and divide by 100, the corner number which is diagonally across ?. $? = \frac{811 \cdot 35}{100} = 283.85$

Answer: 35% of 811 lb is 283.85 lb

Example 2. 11% of your grade is 9.5. What is your grade?

☺ Your grade represents 100%, so the question asks: if 11% is 9.5, what is 100%?

Set up the conversion rectangle:

9.5 _____ 11
| |
?_____ 100

Calculate: $? = \frac{9.5 \cdot 100}{11} = 86.36$

Answer: Your grade is 86.36, which is a B

Example 3. 1 kg is equal 2.2 lb. If you weight 125 lb, what is your weight in kg?

☺ Set up the conversion rectangle:

1 _____ 2.2
| |
? _____125

Calculate: $? = \frac{1 \cdot 125}{2.2} = 56.82$

Answer: You weight 56.82 kg