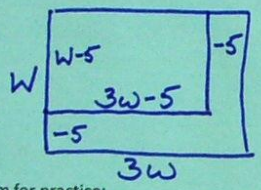
Area Problems; #2

Example:

A rectangle is three times as long as it is wide. If both of the dimensions are decreased by 5m, its area is decreased by $215m^2$. Find its original dimensions.



Big − 215 = Small

$W \cdot 3W - 215 = (3w-5)(w-5)$

$3w^2 - 215 = 3w^2 - 15w - 5w + 25$

$-240 = -20w$

$w = 12$ $\quad 3w = 3 \cdot 12 = 36$

$12 \times 36m$

Problem for practice:

A rectangle is twice as long as it is wide. If both of the dimensions are decreased by 4m, its area is decreased by $164m^2$. Find its original dimensions.

Write 124 in scientific notation.
This is not a very large number, but it will work nicely for an example. To convert this to scientific notation, I first write "1.24". This is not the same number, but $(1.24)(100) = 124$ is, and $100 = 10^2$. Then, in scientific notation, 124 is written as 1.24×10^2.

Actually, converting between "regular" notation and scientific notation is even simpler than I just showed, because all you really need to do is

Write in decimal notation
Since the exponent on 10 ... number, so I'll need to move the decimal point to the right, ... exponent on 10 is "12", I'll need to move the decimal point tw... twelve places over. I make little loops when I count off the places ... fill in the loops with zeroes:

3.600000000000

In other words, the numbe...

Convert 93,000,000 to
This is a large number, so ... eresting" digit in this number is the leading 9, so that's where ... ere it is to right after the 9, the decimal point will need to move se... be a positive 7, and the answer is 9.3×10^7

Notes Page 12

Scientific Notation and Standard Form (Decimal Notation) Practice

e in standard form.

0 x 10^3 4000 2) 4.5 x 10^4 45,000 3) 6.5 x 10^5 650,000

6 x 10^2 760 5) 8 x 10^3 8,000 6) 6.32 x 10^7 63,200,000

e each number in scientific notation.

65,000,000 4.65×10^8 8) 98,000,000,000 9.8×10^{10} 9) 373,000 3.73×10^5

697,000,000,000 6.97×10^{11} 11) 54,000,000 5.4×10^7 12) 24,340,000 2.434×10^7

your calculator to evaluate the following. Write the answer in scientific notation and standard form. Round ree significant digits.

	Scientific notation	Standard form
7^{12}	1.38×10^{10}	13,800,000,000
12^{15}	1.54×10^{16}	15,400,000,000,000,000
4^{24}	2.81×10^{14}	281,000,000,000,000
18^9	1.98×10^{11}	198,000,000,000