Multiplying Decimals by Whole Numbers

Multiplying a decimal by a whole number can be solved by repeated addition!
$4 \times 0.2 = 0.2 + 0.2 + 0.2 + 0.2 = 0.8$ Since we repeatedly added a number with *tenths*, the answer also has *tenths*.
$5 \times 0.15 = 0.15 + 0.15 + 0.15 + 0.15 + 0.15 = 0.75$ Since we repeatedly added a number with *hundredths*, the answer also has *hundredths*.
$3 \times 0.006 = 0.006 + 0.006 + 0.006 = 0.018$ Since we repeatedly added a number with *thousandths*, the answer also has *thousandths*.

1. Write each multiplication as a repeated addition, and solve.

a. $2 \times 0.8 =$	**b.** $3 \times 1.5 =$
c. $4 \times 0.03 =$	**d.** $2 \times 0.007 =$

Using multiplication: To solve 6×0.05, you can multiply $6 \times 5 = 30$ in your head. You are multiplying 6 times 5 *hundredths*. Obviously, the answer is 30 *hundredths*. (Compare this to "6 times 5 apples = 30 apples".)

So, in order for it to be *hundredths*, your answer needs to have <u>two</u> decimal digits: it is 0.30.

Similarly, 7×0.008 is going to be *thousandths*, so it needs *three* decimal digits. So, first multiply without the decimal point: $7 \times 8 = 56$, and then figure that the answer has to be 0.056.

2. Put the decimal point in the answer.

a. $10 \times 0.4 = 4\,0$	**g.** $7 \times 0.05 = 3\,5$	**m.** $4 \times 0.004 = 1\,6$
b. $100 \times 0.4 = 4\,0\,0$	**h.** $8 \times 0.05 = 4\,0$	**n.** $5 \times 0.008 = 4\,0$
c. $1000 \times 0.4 = 4\,0\,0$	**i.** $10 \times 0.05 = 5\,0$	**o.** $3 \times 0.012 = 3\,6$
d. $8 \times 0.4 = 3\,2$	**j.** $10 \times 0.09 = 9\,0$	**p.** $10 \times 0.003 = 3\,0$
e. $80 \times 0.4 = 3\,2\,0$	**k.** $100 \times 0.09 = 9\,0\,0$	**q.** $100 \times 0.003 = 3\,0\,0$
f. $800 \times 0.4 = 3\,2\,0\,0$	**l.** $1000 \times 0.09 = 9\,0\,0\,0$	**r.** $1000 \times 0.003 = 3\,0\,0\,0$