NS6-21: Mental Math

To multiply **4 × 22**,

Leela rewrites 22 as a sum: 22 = 20 + 2

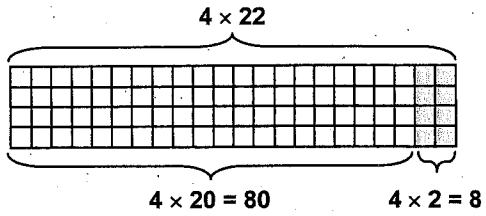
She first multiplies 4 by 20: 4 × 20 = 80

Next she multiplies 4 by 2: 4 × 2 = 8

Finally she adds the two results: 80 + 8 = 88

So Leela can conclude that **4 × 22 = 88**.

This picture shows why Leela's method works:



4 × 22 = (4 × 20) + (4 × 2) = 80 + 8 = 88

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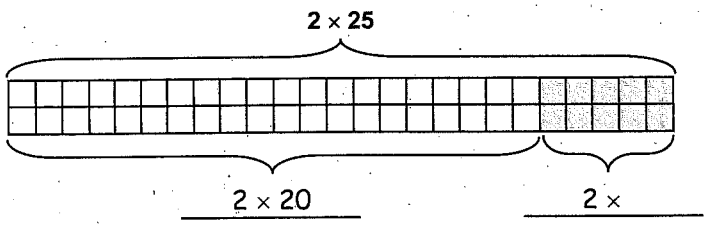
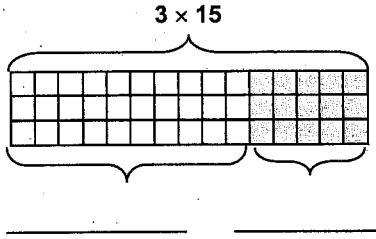
1. Use the picture to write the multiplication statement as a sum. The first one is started for you.

a)



2 × 25 = (2 × ____) + (2 × ____)

b)



3 × 15 = (_____) + (_____)

2. Multiply using Leela's method. The first one has been done for you.

a) 5 × 13 = 5 × 10 + 5 × 3 = 50 + 15 = 65

b) 4 × 21 = _____ + _____ = _____ = _____

c) 3 × 43 = _____ + _____ = _____ = _____

d) 2 × 432 = 2 × 400 + 2 × 30 + 2 × 2 = 800 + 60 + 4 = 864

e) 3 × 312 = _____

f) 4 × 321 = _____

3. Multiply in your head by multiplying the digits separately.

a) 3 × 12 = _____ b) 3 × 52 = _____ c) 6 × 31 = _____ d) 7 × 21 = _____

e) 5 × 31 = _____ f) 3× 43 = _____ g) 6 × 51 = _____ h) 2 × 44 = _____

i) 4 × 521 = _____ j) 3 × 621 = _____ k) 5 × 411 = _____ l) 2 × 444 = _____

m) 3 × 632 = _____ n) 4 × 422 = _____ o) 4 × 212 = _____ p) 2 × 421 = _____

4. a) Stacy placed 821 books in each of 4 bookshelves. How many books did she place altogether?

b) Nickalo put 723 pencils in each of 3 boxes. How many pencils did he put in the boxes?