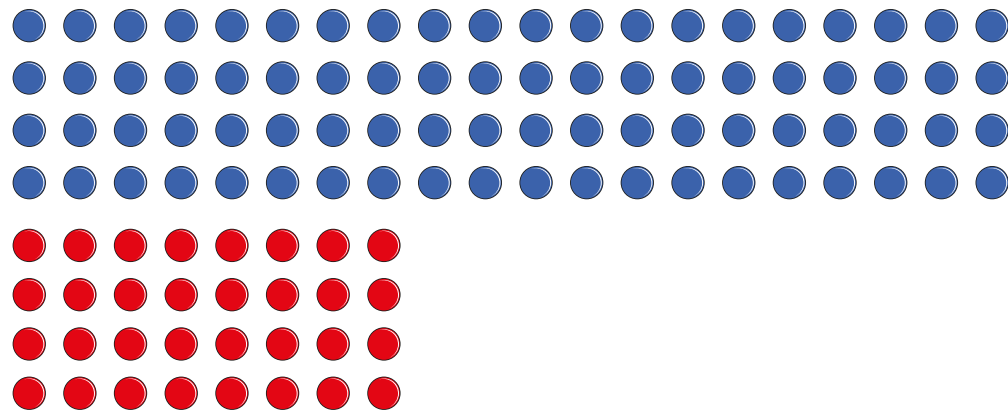


# Efficient multiplication

- 1 The children of Class 4 are multiplying  $28 \times 4$  mentally. They are trying two different methods.

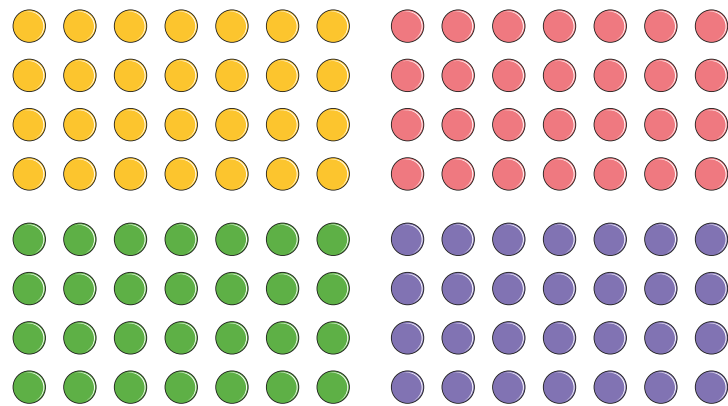
a) Complete their calculations.

## Method 1



$$20 \times 4 + 8 \times 4 = \boxed{\phantom{00}} + \boxed{\phantom{00}} = \boxed{\phantom{00}}$$

## Method 2



$$4 \times \boxed{\phantom{00}} = \boxed{\phantom{00}}$$

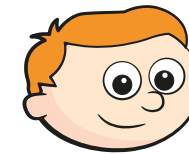
- b) Which method do you find easier?  
Talk about it with a partner.
- c) What other methods could you use to work out  $28 \times 4$ ?

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- 2 Ron, Amir and Annie have worked out  $35 \times 6$  in different ways.



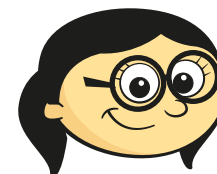
Ron

I multiplied 30 by 6 and then added 5 more lots of 6



Amir

I multiplied 35 by 2, then multiplied that answer by 3



Annie

I multiplied 5 by 6, then multiplied that answer by 7

- a) Work out the answer using each method to show that they are all correct.

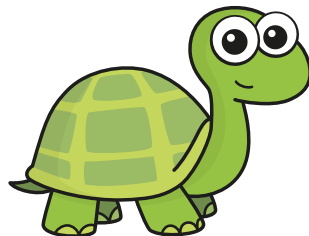
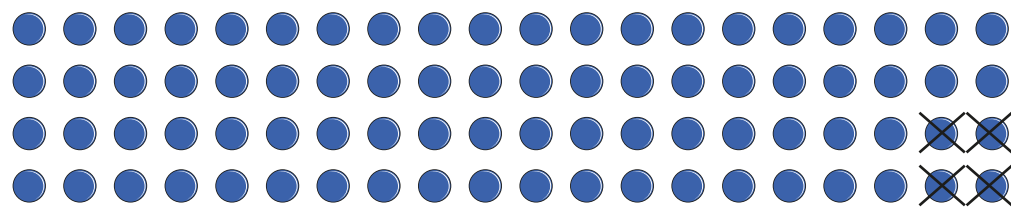
Ron

Amir

Annie

- b) Who has used the most efficient method?  
Talk about it with a partner.

- 3 Tiny is working out  $21 \times 4$



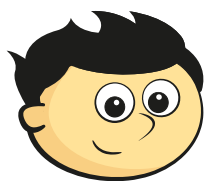
$$\begin{aligned} 20 \times 4 &= 80 \\ 80 - 4 &= 76 \\ 21 \times 4 &= 76 \end{aligned}$$

- a) What mistake has Tiny made?

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- b) What is the correct answer?

- 4 Jack has worked out  $36 \times 9$



$$\begin{aligned} 36 \times 9 \\ 36 \times (10 - 1) \\ 360 - 36 &= 324 \end{aligned}$$

- a) Use Jack's method to work out  $28 \times 9$

$$28 \times 9 = \boxed{\phantom{000}}$$

- b) Adapt Jack's method to work out  $36 \times 99$

$$36 \times 99 = \boxed{\phantom{0000}}$$

- 5 Esther has found a quick way to multiply 84 by 5

$$\begin{aligned} 84 \times 5 \\ 84 \times 10 &= 840 \\ \text{(then divide by 2) which is } &420 \end{aligned}$$

Use Esther's method to complete the calculations.

a)  $43 \times 5 = \boxed{\phantom{000}}$

c)  $74 \times 5 = \boxed{\phantom{000}}$

b)  $62 \times 5 = \boxed{\phantom{000}}$

d)  $\boxed{\phantom{000}} = 96 \times 5$

- 6 Tommy and Dora are both working out  $25 \times 8$

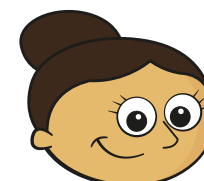
- a)

$$25 \times 8 = 25 \times 10 - 25 \times 2$$



Use Tommy's method to work out the answer.

- b)



$$25 \times 8 = 50 \times 8 \div 2$$

Use Dora's method to work out the answer.

- c) Whose method do you prefer?

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Why?