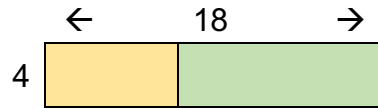
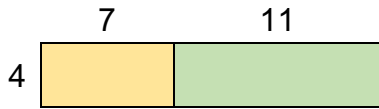




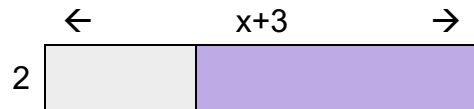
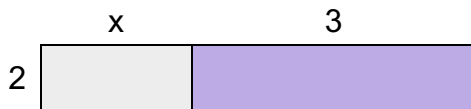
Introduction to Expanding Brackets (1)

Pictorial Stage

1 What is the same and what is different about the two diagrams below?

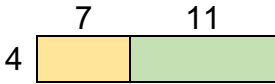


2 What is the same and what is different about the two diagrams below?

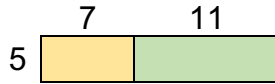


3 Each part contains two identical diagrams. Work out what the ? represents.

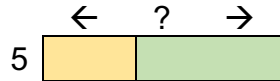
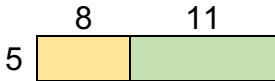
a)



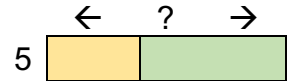
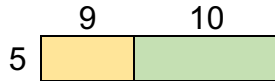
b)



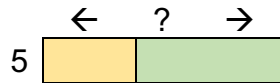
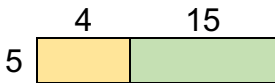
c)



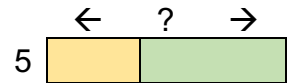
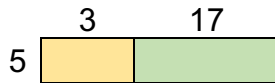
d)



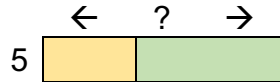
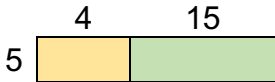
e)



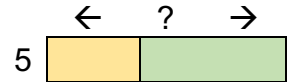
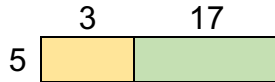
f)



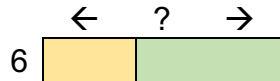
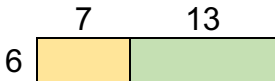
g)



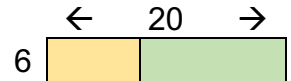
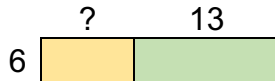
h)



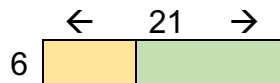
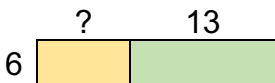
i)



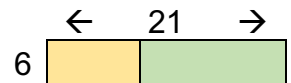
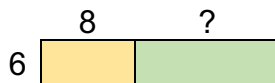
j)



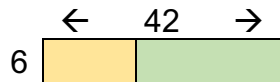
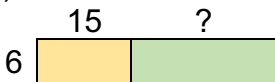
k)



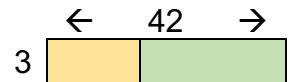
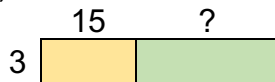
l)



m)



n)

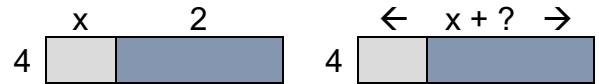


4 Each part contains two identical diagrams. Work out what the ? or ___ represents. This may be either be a numerical value or a variable or a combination of the two.

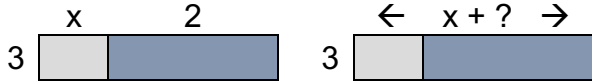
a)



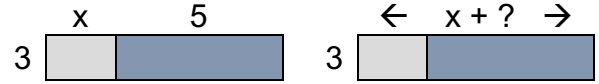
b)



c)



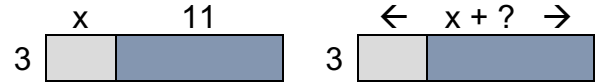
b)



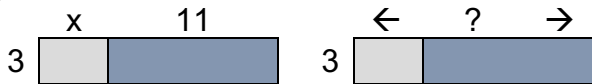
e)



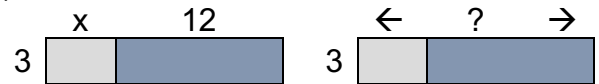
f)



g)



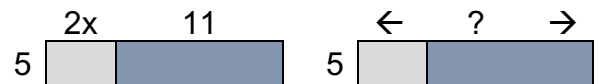
h)



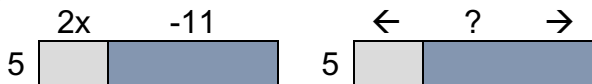
i)



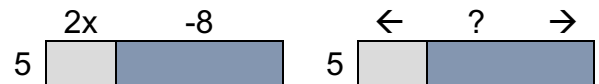
j)



k)



l)



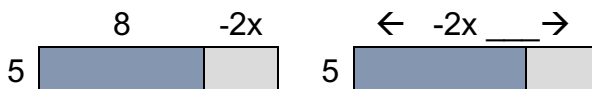
m)



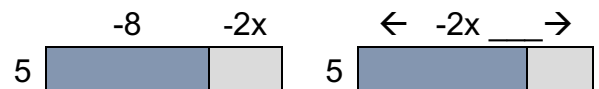
n)



o)



p)

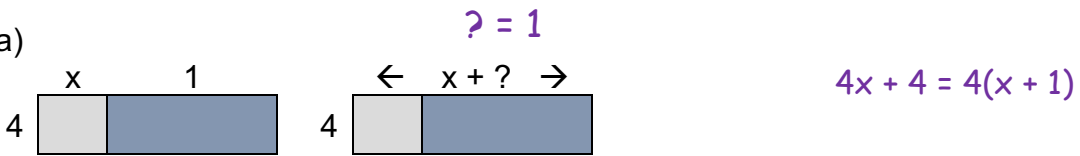


5 What is the relationship between the total areas of each pair of shapes in questions 3 and 4?

- 6 Write two equal expressions to represent the total areas of each pair of shapes in question 4. An example has been done for you.
-

Example:

4a)



$4x + 4 = 4(x + 1)$

Working out space for Q6

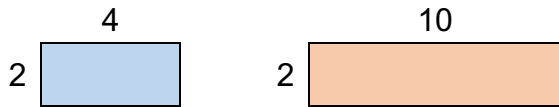


Introduction to Expanding Brackets (2)

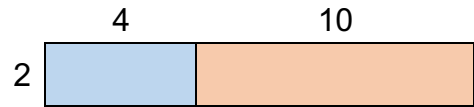
Pictorial Stage

1

a) Work out the areas of the two rectangles below



b) Work out the total area of the shape below



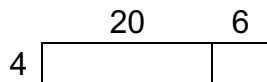
c) What do you notice about your answers to parts a) and b)?

d) This rectangle is identical to the other two. What is the length marked with a ♣? Explain your answer.

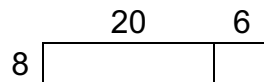


2 Using the grids provided, calculate each of the following

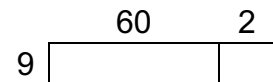
a) 4×26



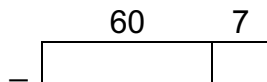
b) 8×26



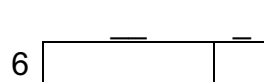
c) 9×62



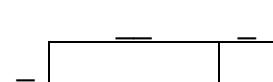
d) 9×67



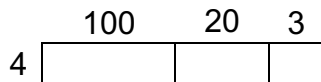
e) 6×97



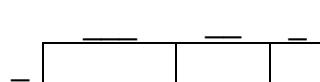
f) 7×96



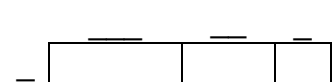
g) 4×123



h) 5×123



i) 5×321



You will need to draw your own diagram for the last three parts.

j) 6×321

k) 6×361

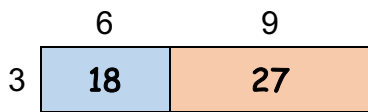
l) 9×613

3 With the help of a diagram, write a couple of sentences to explain how to calculate 7×532 .

Space for your diagram

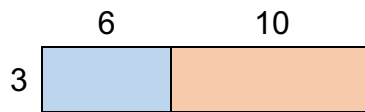
4 Calculate the area of each coloured part **and** the total area of the shape.

Example

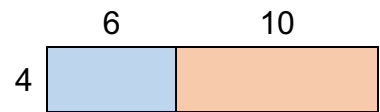


Total Area = $18 + 27 = 45$

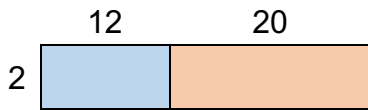
a)



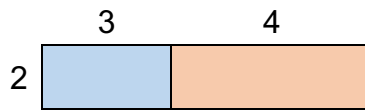
b)



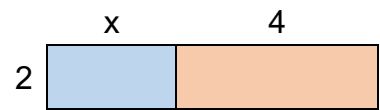
c)



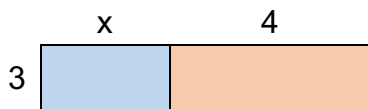
d)



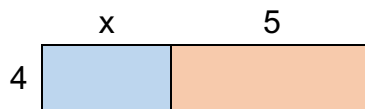
e)



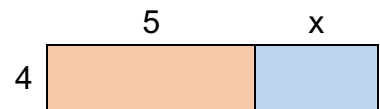
f)



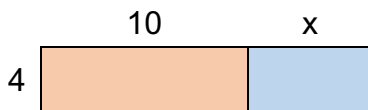
g)



h)



i)



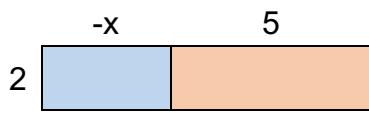
j)



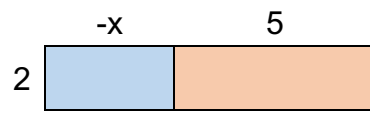
k)



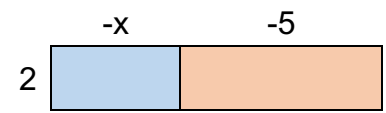
l)



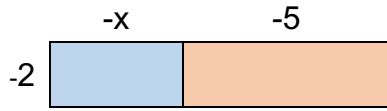
m)



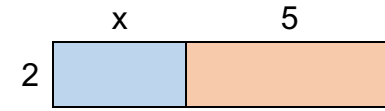
n)



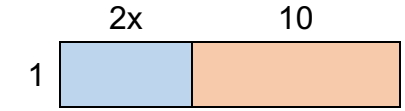
o)



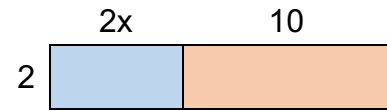
p)



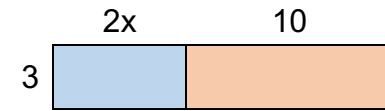
q)



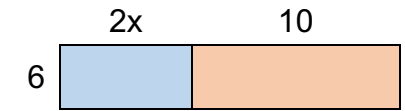
r)



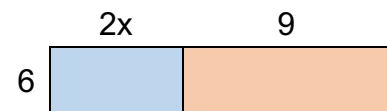
s)



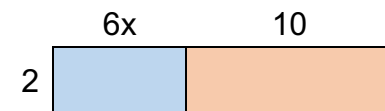
t)



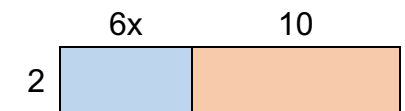
u)



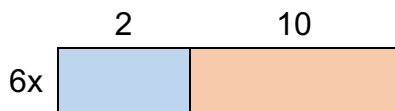
v)



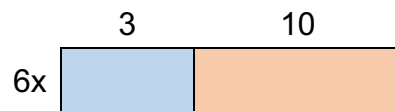
w)



x)



y)



z)

