Expanding Brackets with Algebra Tiles

Expand and simplify the following:

	Question	Tiles Diagram	Grid method	Answer
e.g.	$3(x + 2)$			$3x + 6$
1	$4(x + 2)$			
2	$3(x - 2)$			
3	$2(3 + x)$			
4	$3(x + 2) + 4(x + 2)$			
5	$x(x + 2)$			
6	$-3(2 - x)$			

Expand and simplify the following:

	Question	Tiles Diagram	Grid Method			Answer
e.g.	$(x+3)(x+2)$		**+2**	$2x$	$+6$	$= x^2 + 3x + 2x + 6$
			x	x^2	$3x$	$= x^2 + 5x + 6$
				x	$+3$	
1	$(x+3)(x+1)$					
2	$(x+3)(x-1)$					
3	$(3+x)(x+2)$					
4	$(x+2)(x-5)$					
5	$(x-2)(x+5)$					
6	$(x+3)^2$					

Fill in the blank sections in the following grids:

1)

3		
	x	$+4$

2)

6		
	x	-2

3)

x		
	x	$+3$

4)

$+5$		
x		
	x	$+6$

5)

-7		
x		
	x	$+2$

6)

$+7$		
x		
	x	-2

7)

$+3$		15
x		
	x	

8)

		8
x		
	x	$+2$

9)

$+6$		
x	x^2	$4x$

10)

$+7$		42
		$6x$
	x	

11)

-3		-12
x		
	x	

12)

$+8$		
	x^2	
		-3

13)

	$-5x$	
x		$-4x$
	x	

14)

		10
		$2x$
	x	

15)

		-18
x		
		$+6$

16)

		5
	x^2	

17)

		12
	x^2	

18) You can't use the same answer as Q17!

		12
	x^2	

Factorising

Example: Factorise $x^2 + 7x + 12$

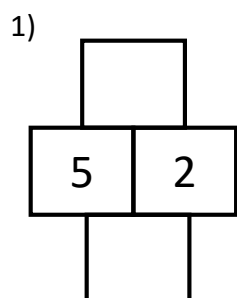|		
		12
	x^2	
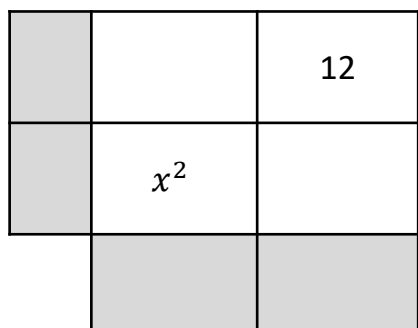
- How many different ways can you fill this grid?
- Which one of those gives you $7x$

Exercise:

	Product		→			
3	4			3	4	
	Sum					

1)

5	2	

2)

7	-2	

3)

	18	
6		

4)

21		
	7	

5)

	-3	
5		

6)

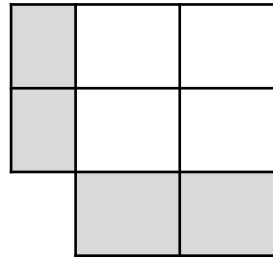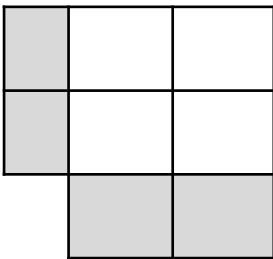| 24		
11		
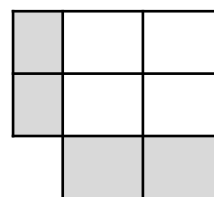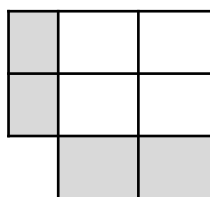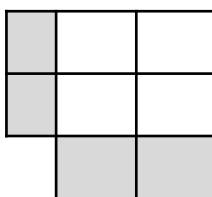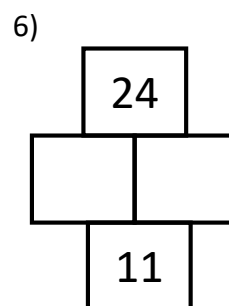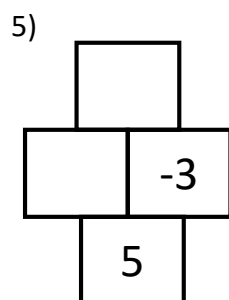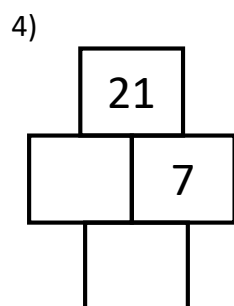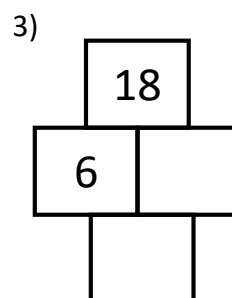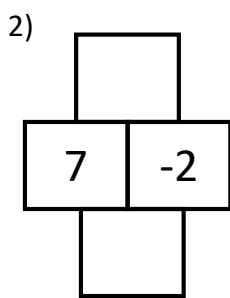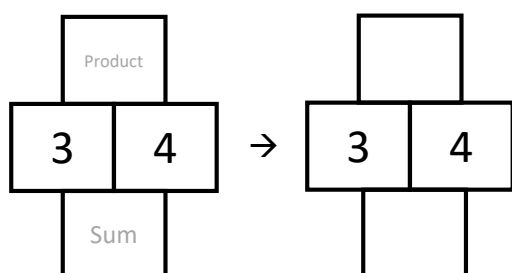
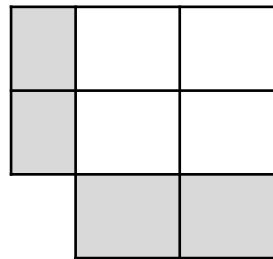Use the previous exercise to help factorise the following:
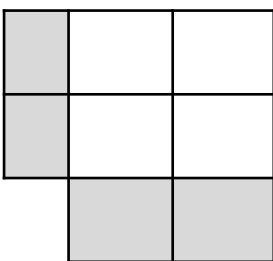
1) $x^2 + 7x + 10$
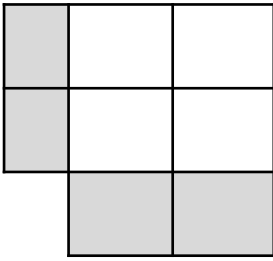
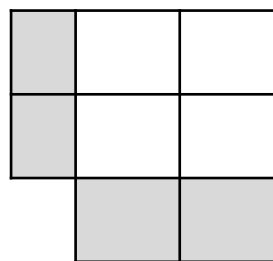2) $x^2 + 5x - 14$

3) $x^2 + 9x + 18$
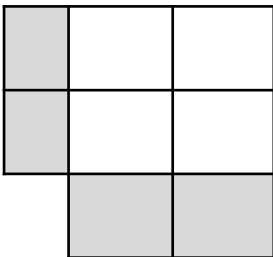
4) $x^2 + 10x + 21$

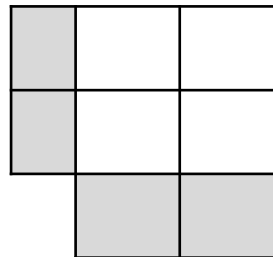5) $x^2 + 5x - 24$

6) $x^2 + 11x + 24$
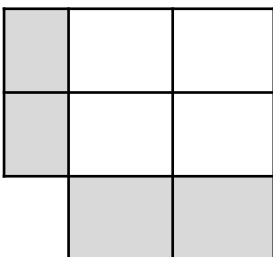
Now try to factorise the following:

1) $x^2 + 12x + 35$

2) $x^2 + 5x - 6$

3) $x^2 - 5x - 6$

4) $x^2 - 7x + 12$