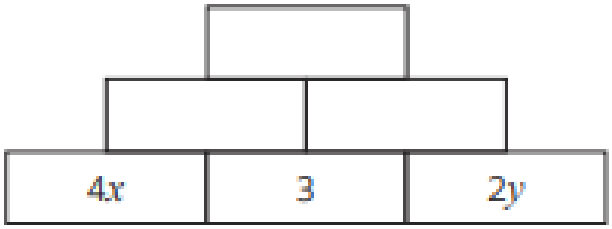
Forming and Simplifying Expressions

1. There are n paperclips in each pot. Match the expressions which describe the number of paperclips with each scenario.

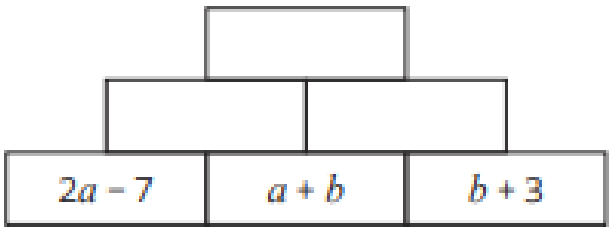
The number of paperclips in 4 pots.	$\frac{8}{2}$
The number of paperclips in a pot after 4 paperclips are taken out.	$2n$
The number of paperclips in a pot after 8 paperclips are added.	$4n$
One pot is shared between two smaller pots; the number in one smaller pot.	$4(n-3)$ or $4n-12$
The number of paperclips in 2 pots.	$n+8$
The number of paperclips in 4 pots when 3 are removed from each pot.	$n-4$

2. In each pyramid, add the two expressions from the two blocks below. Leave your answers in their simplest form.

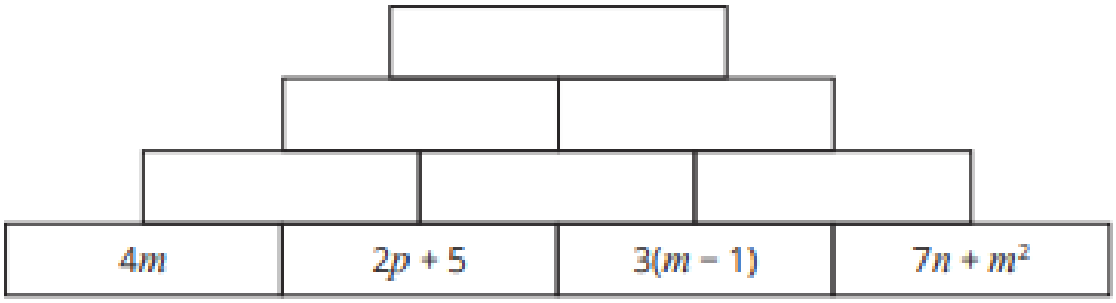
a.



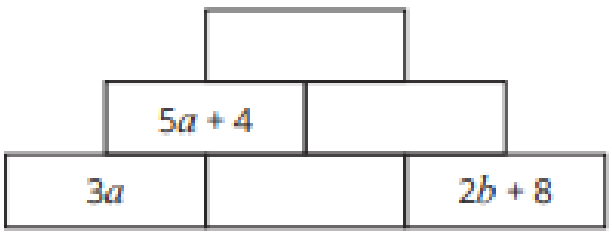
b.



c.



d.



Optional Challenge:

Design a three-tiered pyramid (or four-tiered, if you're brave!) which has a top block of value $5a - b + 3$

3. a. Georgia thinks of a number. She adds four to the number then multiplies this by 12. Given that her starting number was x, write an expression for her final number.

   b. Rebecca thinks of a number. When she doubles that number and adds one it gives the same answer as adding 7 to the original number. Write an equation showing this situation.

Optional Challenge:

Solve the equation in part *b* to find Rebecca's starting number.

4. Jon is x years old. His sister, Angie, is two years younger than him. Their friend is three times the age of Angie. Write an expression for the sum of their ages, giving your answer in terms of x and in its simplest form.

5. There are three car parks in a town. Car park A can hold up to n cars. Car park B can hold twice this amount. Car park C can hold 100 cars more than car park A.

   If car parks B and C are full and car park A has 9 free spaces, write an expression in terms of n for the number of cars in the three car parks.

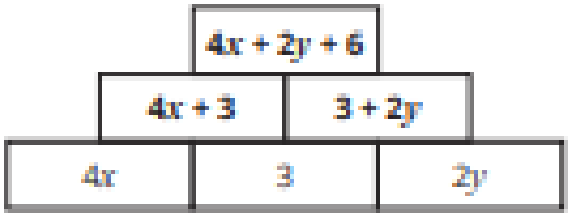
Forming and Simplifying Expressions **Answers**

1. There are n paperclips in each pot. Match the expressions which describe the number of paperclips with each scenario.

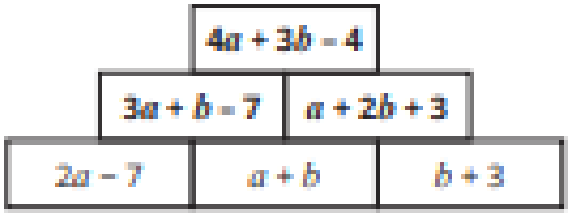
The number of paperclips in 4 pots.	$\frac{n}{2}$
The number of paperclips in a pot after 4 paperclips are taken out.	$2n$
The number of paperclips in a pot after 8 paperclips are added.	$4n$
One pot is shared between two smaller pots; the number in one smaller pot.	$4(n-3)$ or $4n-12$
The number of paperclips in 2 pots.	$n+8$
The number of paperclips in 4 pots when 3 are removed from each pot.	$n-4$

2. In each pyramid, add the two expressions from the two blocks below. Leave your answers in their simplest form.

a.



b.



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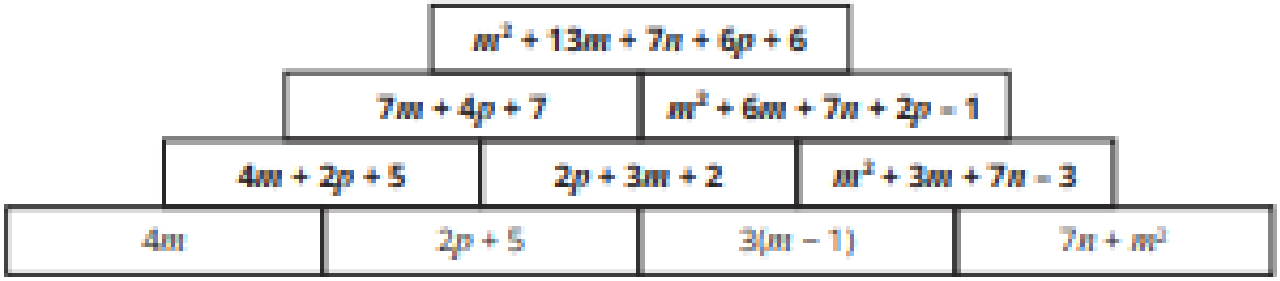
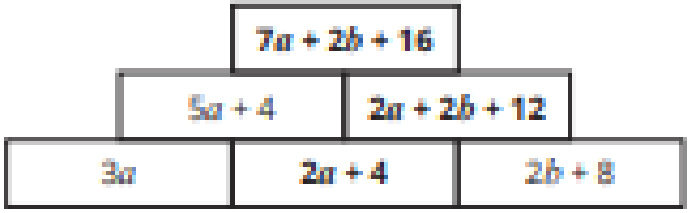


d.



Optional Challenge:

Design a three-tiered pyramid (or four-tiered, if you're brave!) which has a top block of value $5a - b + 3$

3. a. Georgia thinks of a number. She adds four to the number then multiplies this by 12. Given that her starting number was x, write an expression for her final number.

   $12(x + 4)$ or $12x + 48$

   b. Rebecca thinks of a number. When she doubles that number and adds one it gives the same answer as adding 7 to the original number. Write an equation showing this situation.

   $2x + 1 = x + 7$

Optional Challenge:

Solve the equation in part *b* to find Rebecca's starting number.

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4. Jon is x years old. His sister, Angie, is two years younger than him. Their friend is three times the age of Angie. Write an expression for the sum of their ages, giving your answer in terms of x and in its simplest form.

   $x + x - 2 + 3(x - 2) = 5x - 8$

5. There are three car parks in a town. Car park A can hold up to n cars. Car park B can hold twice this amount. Car park C can hold 100 cars more than car park A.

   If car parks B and C are full and car park A has 9 free spaces, write an expression in terms of n for the number of cars in the three car parks.

   $n - 9 + 2n + n + 100 = 4n + 91$