Planner

Formulae and expressions

- Simplifying algebraic expressions involving brackets
- Forming algebraic expressions

Keywords

You should know

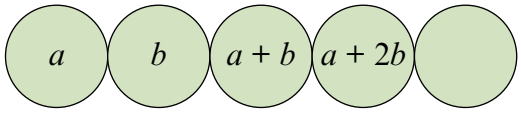
explanation 1

online

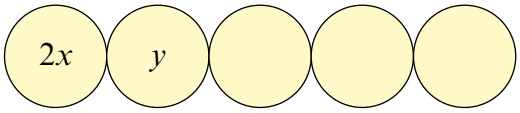
1 In each algebra caterpillar, the expression in each section is the sum of the expressions in the previous two sections.

What are the missing expressions? Give your answers in their simplest form.

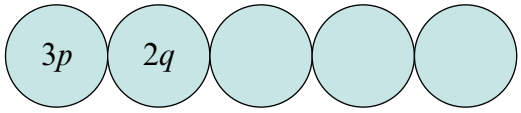
a



b



c



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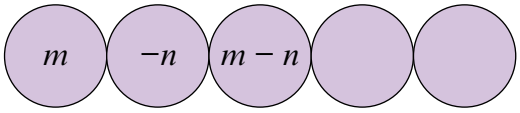

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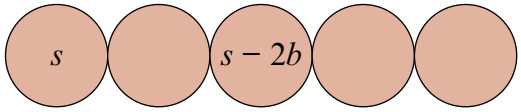

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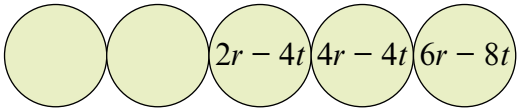
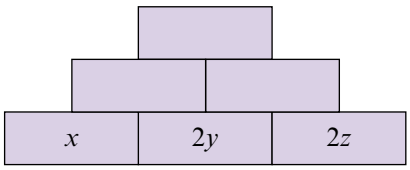


explanation 2

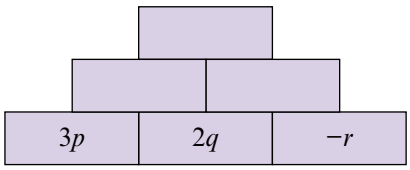
2 In these algebra pyramids, the expression in each brick is the sum of the expressions in the two bricks beneath it.

Copy and complete the pyramids. Give each expression in its simplest form.

a

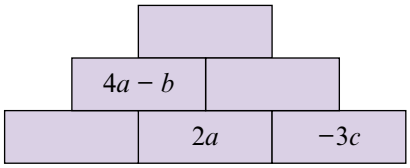


b

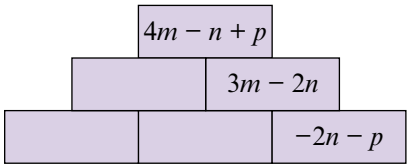


3 Copy and complete these algebra pyramids.
Give each expression in its simplest form.

a



b



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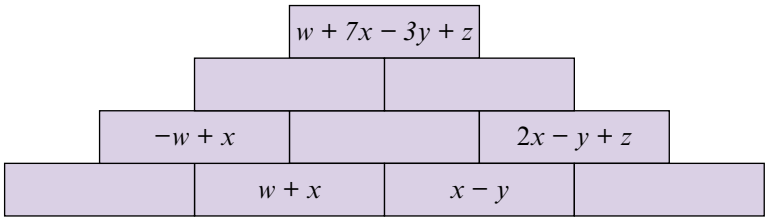


explanation 3

4 For each function machine, what is the output for each input?
Copy and complete each table. Write your answers in their simplest forms.

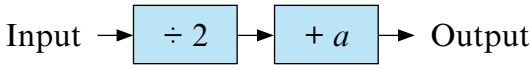
a Input → × 2 → Output

Input	Output
$x + 2$	
$\frac{x}{3}$	
$a - 6$	
$\frac{p - 4}{5}$	

b Input → × 3 → − 1 → Output

Input	Output
$a + b$	
$\frac{b}{3}$	
$-b + 2$	
$\frac{b}{6}$	

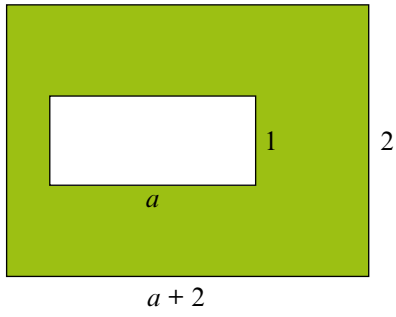
5 Copy and complete the table to show the output for each input.
Give your answers in their simplest forms.



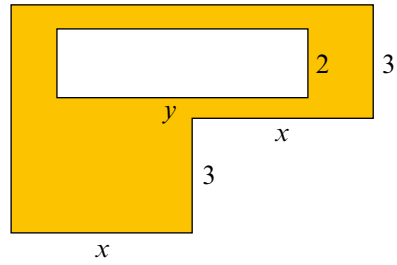
Input	Output
$4a + 2b$	
$6 - a$	
$4(x - a)$	
$\frac{-4a + 8}{2}$	

6 Write an algebraic expression for the shaded area of each diagram.
Give your answers in their simplest form.

a



b



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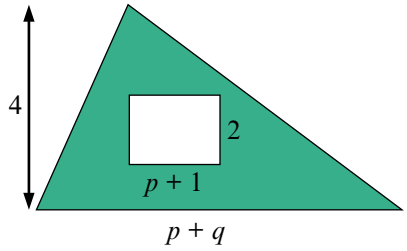

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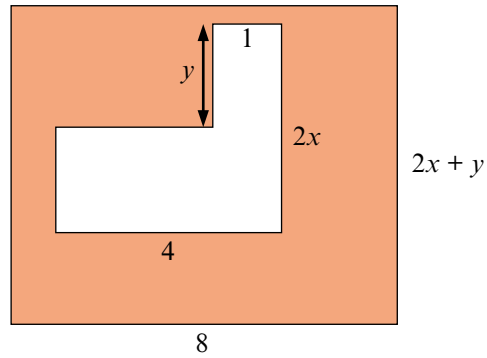

Remember
Area of a rectangle = length × width
Area of a triangle = $\frac{1}{2}$ × base × height