Varied Fluency
Step 3: Forming Expressions

National Curriculum Objectives:

Mathematics Year 6: (6A1) Express missing number problems algebraically

Differentiation:

Developing Questions to support creating simple algebraic expressions using addition and multiplication. Pictorial support given for some questions.
Expected Questions to support creating simple algebraic expressions, using all four operations. Pictorial support given for some questions.
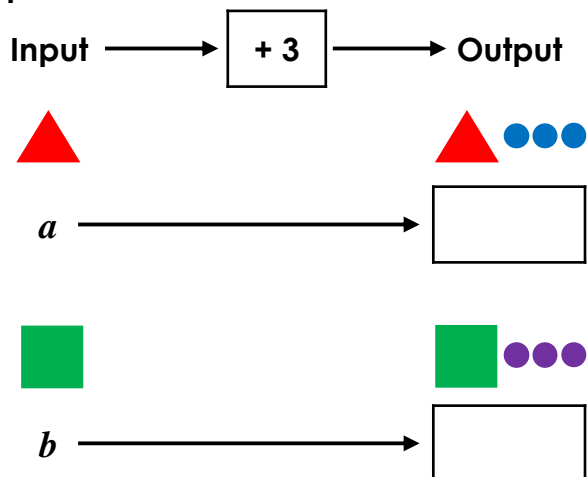**Greater Depth** Questions to support creating simple algebraic expressions using all four operations and decimals. No pictorial support given.

More **Year 6 Algebra** resources.

Did you like this resource? Don't forget to review it on our website.
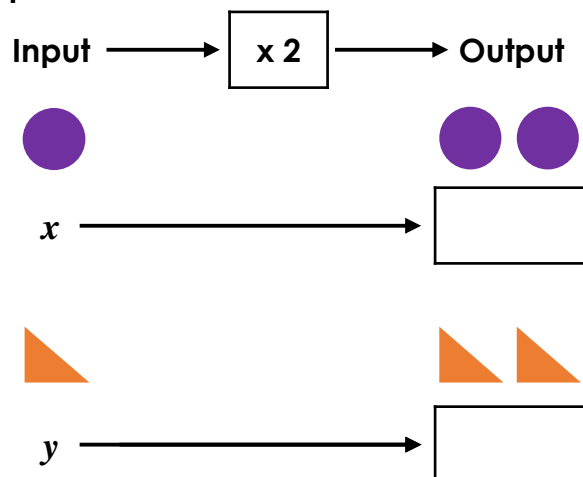
Forming Expressions

1a. Use the pictures to help you form the expression.

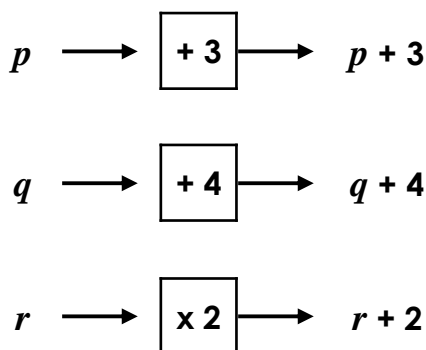Input → [+ 3] → Output

a ⟶ [ ]

b ⟶ [ ]

Forming Expressions

1b. Use the pictures to help you form the expression.

Input → [x 2] → Output

x ⟶ [ ]

y ⟶ [ ]

2a. Circle the function machine that does not show the correct expression.

p ⟶ [+ 3] ⟶ $p + 3$

q ⟶ [+ 4] ⟶ $q + 4$

r ⟶ [x 2] ⟶ $r + 2$

2b. Circle the function machine that does not show the correct expression.

a ⟶ [x 4] ⟶ $4a$

b ⟶ [+ 2] ⟶ $b + 2$

c ⟶ [x 3] ⟶ $c3$

3a. Find the missing functions.

a ⟶ [ ] ⟶ $a + 3$

[x 3] [+ 3]

b ⟶ [ ] ⟶ $2b$

[+ 2] [x 2]

3b. Find the missing functions.

x ⟶ [ ] ⟶ $5x$

[+ 5] [x 5]

y ⟶ [ ] ⟶ $y + 4$

[x 4] [+ 4]

Varied Fluency – Forming Expressions – Year 6 Developing
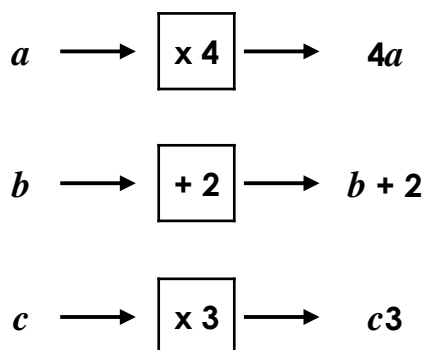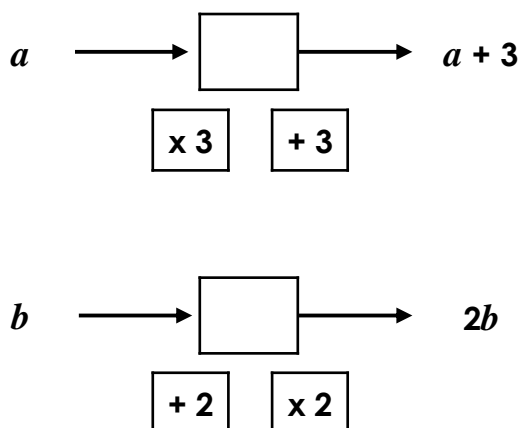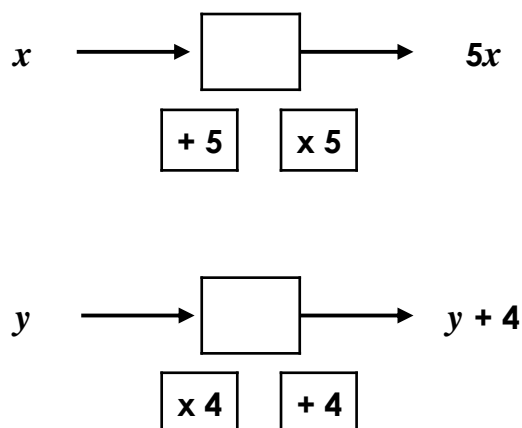
Forming Expressions

4a. Form the expressions from the given inputs.

Input → $\boxed{+\ 6}$ → Output

▲ ▲ ●●●/●●●

a ⟶ $\boxed{}$

■

b ⟶ $\boxed{}$

E   VF
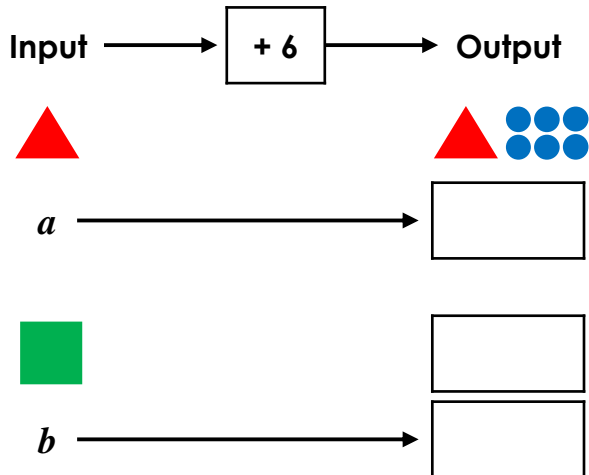
Forming Expressions

4b. Form the expressions from the given inputs.
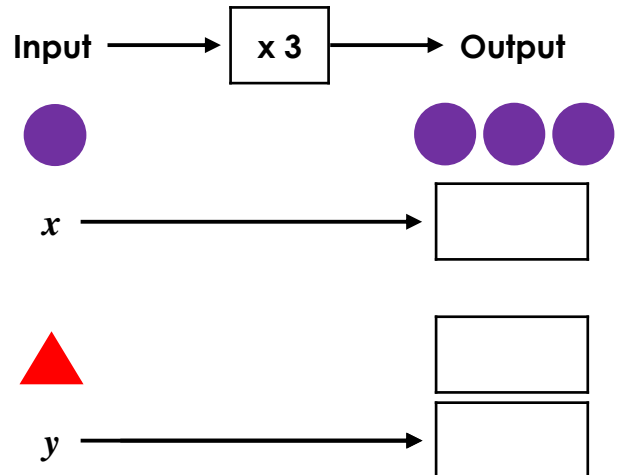
Input → $\boxed{x\ 3}$ → Output

● ● ● ●

x ⟶ $\boxed{}$

▲

y ⟶ $\boxed{}$

E   VF

5a. Circle the function machine that does not show the correct expression.
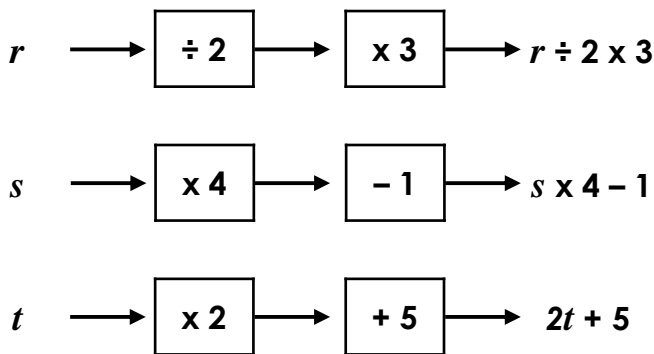
r ⟶ $\boxed{÷\ 2}$ ⟶ $\boxed{x\ 3}$ ⟶ $r ÷ 2\ x\ 3$

s ⟶ $\boxed{x\ 4}$ ⟶ $\boxed{-\ 1}$ ⟶ $s\ x\ 4 - 1$

t ⟶ $\boxed{x\ 2}$ ⟶ $\boxed{+\ 5}$ ⟶ $2t + 5$

E   VF

5b. Circle the function machine that does not show the correct expression.

a ⟶ $\boxed{x\ 4}$ ⟶ $\boxed{÷\ 2}$ ⟶ $4a ÷ 2$

b ⟶ $\boxed{+\ 3}$ ⟶ $\boxed{x\ 2}$ ⟶ $b + 3\ x\ 2$

c ⟶ $\boxed{-\ 1}$ ⟶ $\boxed{x\ 3}$ ⟶ $1 + 3c$
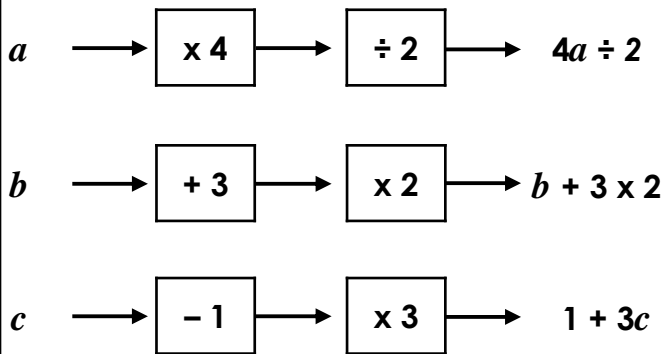
E   VF

6a. Find the missing functions.

a ⟶ $\boxed{}$ ⟶ $4a$

$\boxed{x\ 4}$ $\boxed{+\ 4}$ $\boxed{÷\ 4}$

b ⟶ $\boxed{}$ ⟶ $b ÷ 3$

$\boxed{÷\ 3}$ $\boxed{-\ 3}$ $\boxed{x\ 3}$

E   VF

6b. Find the missing functions.

x ⟶ $\boxed{}$ ⟶ $x - 5$

$\boxed{x\ 5}$ $\boxed{+\ 5}$ $\boxed{-\ 5}$

y ⟶ $\boxed{}$ ⟶ $2y$

$\boxed{-\ 2}$ $\boxed{x\ 2}$ $\boxed{÷\ 2}$

E   VF

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Varied Fluency – Forming Expressions – Year 6 Expected
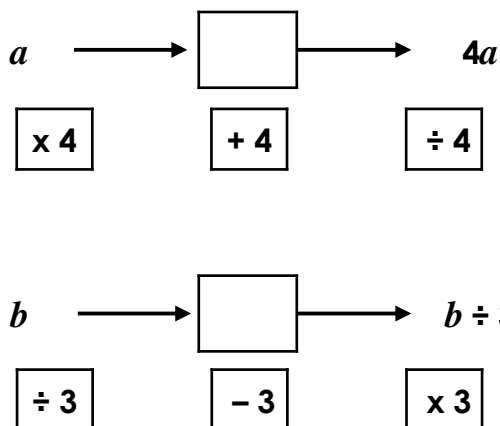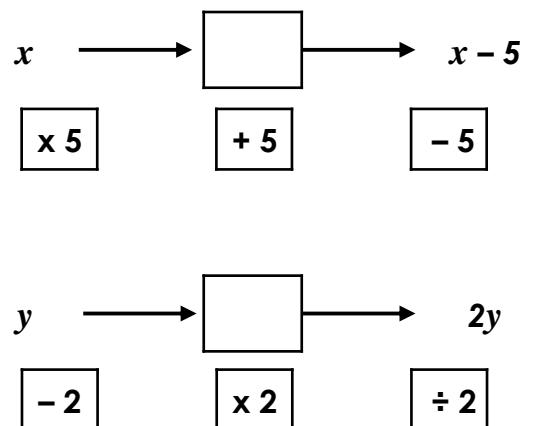
Forming Expressions

7a. Find the outputs and form the expression.

Input ⟶ [− 5] ⟶ Output

2a ⟶ [ ]

b + 4 ⟶ [ ]

VF

Forming Expressions

7b. Find the outputs and form the expression.

Input ⟶ [÷ 4] ⟶ Output

6x − 3 ⟶ [ ]

8y ⟶ [ ]

VF

8a. Circle the function machine that does not show the correct expression.

d ⟶ [x 0.5] ⟶ [+ 5] ⟶ $0.5d + 5$

e ⟶ [+ 3.2] ⟶ [x 4] ⟶ $4e + 3.2$

f ⟶ [x 6] ⟶ [− 1.7] ⟶ $6f − 1.7$

VF

8b. Circle the function machine that does not show the correct expression.

h ⟶ [x 0.75] ⟶ [− 7] ⟶ $0.75h − 7$

i ⟶ [x 8] ⟶ [+ 6.2] ⟶ $i8 + 6.2$

j ⟶ [− 1.4] ⟶ [x 5] ⟶ $j − 1.4$ x 5

VF

9a. Find the missing functions.

a ⟶ [ ] ⟶ [ ] ⟶ $2.5a ÷ 8$

[x 8] [x 2.5] [÷ 8] [÷ 2.5] [+ 2.5]

b ⟶ [ ] ⟶ [ ] ⟶ $7b − 6.3$

[+ 7] [x 7] [− 6.3] [− 7] [x 6.3]

VF

9b. Find the missing functions.

x ⟶ [ ] ⟶ [ ] ⟶ $6x + 7.1$

[+ 6] [+ 7.1] [x 6] [x 7.1] [÷ 6]

y ⟶ [ ] ⟶ [ ] ⟶ $0.25y$ x 5

[÷ 0.25] [x 5] [÷ 5] [+ 5] [x 0.25]

VF

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Varied Fluency – Forming Expressions – Year 6 Greater Depth

Varied Fluency
Forming Expressions

Developing
1a. $a + 3$, $b + 3$
2a. r
3a. + 3; x 2

Expected
4a. $a + 6$, $b + 6$ (1 square and 6 circles)
5a. s
6a. x 4, ÷ 3

Greater Depth
7a. $2a - 5$, $b + 4 - 5$
8a. e
9a. x 2.5, ÷ 8
x 7, - 6.3