National Curriculum Objectives:

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

Differentiation:

Questions 1, 4 and 7 (Varied Fluency)
Developing Match the function machine to the correct expression using addition and multiplication. Pictorial support given.
Expected Match the function machine to the correct expression using all four operations. Pictorial support given.
Greater Depth Match the function machine to the correct expression using all four operations. Includes decimal numbers.

Questions 2, 5 and 8 (Varied Fluency)
Developing Identify the missing function when given a completed expression using addition and multiplication. Pictorial support given.
Expected Identify the missing function when given a completed expression using all four operations.
Greater Depth Identify the missing function when given a completed expression using all four operations. Includes decimal numbers.

Questions 3, 6 and 9 (Reasoning and Problem Solving)
Developing Use digit cards to create a function and write the matching expression using addition and multiplication.
Expected Use digit cards to create a function and write the matching expression using all four operations.
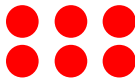**Greater Depth** Use digit cards to create a function and write the matching expression using all four operations. Includes decimal numbers.

More Year 6 Algebra resources.

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

classroomsecrets.co.uk

Forming Expressions

1. Match the function machines with the correct expressions.

A. $b \longrightarrow$ [x 6] $\longrightarrow$ [?]

3b

B. $b \longrightarrow$ [+ 5] $\longrightarrow$ [?]

6b

C. $b \longrightarrow$ [x 3] $\longrightarrow$ [?]

b + 5

VF
HW/Ext

2. These are the outputs for the given function machines. What were the functions?

A. $a \longrightarrow$ [?] $\longrightarrow$ [a + 2]

B. $a \longrightarrow$ [?] $\longrightarrow$ [3a]

C. $a \longrightarrow$ [?] $\longrightarrow$ [a + 4]

VF
HW/Ext

3. Use the digit cards to create functions for the given input and write the expression.

$c \longrightarrow$ [   ] $\longrightarrow$ [   ]

x	–	2	4

7	6	3

RPS
HW/Ext
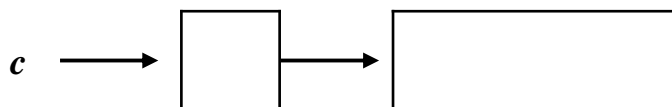
Forming Expressions

4. Match the function machines with the correct expressions.

A. $x \longrightarrow$ | x 3 | $\longrightarrow$ | + 3 | $\longrightarrow$ | ? | | 5x |

B. $x \longrightarrow$ | x 5 | $\longrightarrow$ | ? | | 4x |

C. $x \longrightarrow$ | x 2 | $\longrightarrow$ | x 2 | $\longrightarrow$ | ? | | 3x + 3 |

VF
HW/Ext

5. These are the outputs for the given function machines. What were the functions?

A. $y \longrightarrow$ | ? | $\longrightarrow$ | ? | $\longrightarrow$ | $3y - 7$ |

B. $y \longrightarrow$ | ? | $\longrightarrow$ | $y \div 3$ |

C. $y \longrightarrow$ | ? | $\longrightarrow$ | ? | $\longrightarrow$ | $2y + 6$ |

VF
HW/Ext

6. Use the digit cards to create functions for the given input and write the expression.

$f \longrightarrow$ | | $\longrightarrow$ | |

| x | | ÷ | | − | | + | | 7 |

| 3 | | 4 | | 1 | | 5 |

RPS
HW/Ext

Forming Expressions

---

7. Match the function machines with the correct expressions.

A. $c \longrightarrow$ | x 0.75 | $\longrightarrow$ | + 1.4 | $\longrightarrow$ | ? | | $2c + 6.2$ |

B. $c \longrightarrow$ | x 2 | $\longrightarrow$ | + 6.2 | $\longrightarrow$ | ? | | $0.75c + 1.4$ |

C. $c \longrightarrow$ | x 0.5 | $\longrightarrow$ | x 3 | $\longrightarrow$ | ? | | $1.5c$ |

---

8. These are the outputs for the given function machines. What were the functions?

A. $x \longrightarrow$ | ? | $\longrightarrow$ | ? | $\longrightarrow$ | $4.5x$ |

B. $x \longrightarrow$ | ? | $\longrightarrow$ | ? | $\longrightarrow$ | $4x \div 2$ |

C. $x \longrightarrow$ | ? | $\longrightarrow$ | ? | $\longrightarrow$ | $0.5x + 3$ |

---

9. Use the digit cards to create functions for the given input and write the expression.

$a \longrightarrow$ | | $\longrightarrow$ | | $\longrightarrow$ | |

| x | ÷ | + | – | 0.75 | 5 |

| 0.5 | 2.3 | 6 | 0.25 | 3.1 |

---

classroomsecrets.co.uk
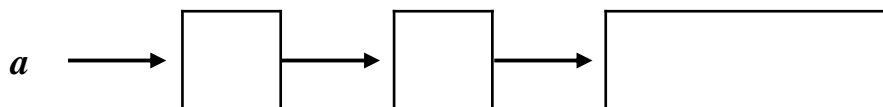
Homework/Extension – Forming Expressions – Year 6 Greater Depth

Developing

1. A. $6b$; B. b + 5; C. $3b$
2. A. + 2; B. x 3; C. + 4
3. Various answers, for example: c – 4; $6c$; $7c$

Expected

4. A. $3x$ + 3; B. $5x$; C. $7x$
5. A. x 3, – 7; B. ÷ 3; C. x 2, + 6
6. Various answers, for example: $4f$; f – 5; f ÷ 4

Greater Depth

7. A. $0.75c$ + 1.4; B. $2c$ + 6.2; C. $1.5c$
8. A. x 0.5, x 9; B. x 4 ÷ 2; C. x 0.5, + 3
9. Various answers, for example: $0.75a$ + 5; $2.3a$ – 5; $6a$ ÷ 0.25.

classroomsecrets.co.uk