Varied Fluency
Step 3: Use An Algebraic Rule

National Curriculum Objectives:

Mathematics Year 6: (6A2) Use simple formulae

Differentiation:

Developing Questions to support using algebraic rules. Using up to 2 steps, addition and subtraction, and multiplication by 2.
Expected Questions to support using algebraic rules. Using up to 2 steps and all 4 operations.
Greater Depth Questions to support using algebraic rules. Using 2 steps and all 4 operations where some answers may include decimals and negative numbers.

More Year 6 Algebra resources.

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

Use An Algebraic Rule

1a. Calculate the output for the following rules where a = 12.

(a + 10) x 2	
2a – 4	
(a – 3) x 2	

D VF

Use An Algebraic Rule

1b. Calculate the output for the following rules where a = 7.

(2a + a) – 2	
(56 + 10) – a	
35 + a	

D VF

2a. Match the output to the correct expression, where a = 10.

45 – 2a	62
(a + 5) x 2	25
72 – a	30

D VF

2b. Match the output to the correct expression, where a = 2.

9 + (a – 1)	10
100 – 2a	14
(a + 5) x 2	96

D VF

3a. True or false?

11 → 2a + (15 – a) → 26

D VF

3b. True or false?

15 → (50 – a) – 10 → 40

D VF

4a. Toby is using the expression 5 + 2a.

Calculate the value of a when his outputs are;

5 + 2a

	17
	27
	11

D VF

4b. Tim is using the expression (a – 2) x 2.

Calculate the value of a when his outputs are;

(a – 2) x 2

	16
	24
	10

D VF

Use An Algebraic Rule

5a. Calculate the output for the following rules where a = 5.

2a + 5	
(a + 3) ÷ 4	
4a – 15	

E VF

Use An Algebraic Rule

5b. Calculate the output for the following rules where a = 9.

$a^2 - 7$	
(10a – 6) ÷ 2	
12 + 3a	

E VF

6a. Match the output to the correct expression, where a = 10.

3a – 5	3
(a – 4) ÷ 2	23
2a + 3	25

E VF

6b. Match the output to the correct expression, where a = 7.

25 + 5a	18
(a ÷ 7) + 8	9
(a – 4) x 6	60

E VF

7a. True or false?

12 → (a – 8) x 10 → 40

E VF

7b. True or false?

5 → $a^2 - 10$ → 0

E VF

8a. Ivy is using the expression (a – 1) ÷ 3.

Calculate the value of a when her outputs are;

(a – 1) ÷ 3

	3
	5
	10

E VF

8b. Jo is using the expression 8a – (a ÷ 2).

Calculate the value of a when her outputs are;

8a – (a ÷ 2)

	75
	90
	30

E VF

Use An Algebraic Rule

9a. Calculate the output for the following rules where a = 12.

$\frac{1}{2}a + (25 - a)$	
$(a^2 - 10) \div 10$	
$3a - (2a + 20)$	

GD VF

10a. Match the output to the correct expression, where a = 2.5.

$3a - (5 + 2a)$	0
$\frac{1}{2}(4a \times 2)$	10
$10a - (5a \times 2)$	- 2.5

GD VF

11a. True or false?

$0.5 \rightarrow (10a \times 12) - 70 \rightarrow 0$

GD VF

12a. Will is using the expression $(a^2 + 10) \div 10$.

Calculate the value of a when his outputs are;

$(a^2 + 10) \div 10$

	1
	9.1
	4.6

GD VF

Use An Algebraic Rule

9b. Calculate the output for the following rules where a = 5.

$a^2 + (10a - 100)$	
$(5a - 6) \div 10$	
$9a - (10a + 7)$	

GD VF

10b. Match the output to the correct expression, where a = 12.

$5a \div (a - 2)$	6
$(2a \div 4) - 12$	63
$(2a + 7.5) \times 2$	- 6

GD VF

11b. True or false?

$2 \rightarrow (a^3 - 5) - 12 \rightarrow - 10$

GD VF

12b. Harry is using the expression $(\frac{1}{2}a + a) \times 2$.

Calculate the value of a when his outputs are;

$(\frac{1}{2}a + a) \times 2$

	27
	60
	9

GD VF

Varied Fluency
Use An Algebraic Rule

Developing

1a. 44, 20, 18

2a. 45 – 2a = 25; (a + 5) x 2 = 30; 72 – a = 62

3a. True

4a. 6, 11, 3

Expected

5a. 15, 2, 5

6a. 3a – 5 = 25; (a – 4) ÷ 2 = 3; 2a + 3 = 23

7a. True

8a. 10, 16, 31

Greater Depth

9a. 19, 13.4, -8

10a. 3a – (5 + 2a) = - 2.5; $\frac{1}{2}$(4a x 2) = 10; 10a – (5a x 2) = 0

11a. False, the correct answer is -10.

12a. 0, 9, 6

Varied Fluency
Use An Algebraic Rule

Developing

1b. 19, 59, 42

2b. 9 + (a – 1) = 10; 100 – 2a = 96; (a + 5) x 2 = 14

3b. False, the correct answer is 25.

4b. 10, 14, 7

Expected

5b. 74, 42, 39

6b. 25 + 5a = 60; (a ÷ 7) + 8 = 9; (a – 4) x 6 = 18.

7b. False, the correct answer is 15.

8b. 10, 12, 4

Greater Depth

9b. -25, 1.9, -12

10b. 5a ÷ (a – 2) = 6; (2a ÷ 4) – 12 = - 6; (2a + 7.5) x 2 = 63

11b. False, the correct answer is -9.

12b. 9, 20, 3