# 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**

# Use An Algebraic Rule

1b. Calculate the output for the following

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

$$2a - 4$$

 $(a - 3) \times 2$ 

rules where a = 7.

$$(56 + 10) - a$$

(2a + a) - 2





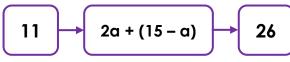
2a. Match the output to the correct expression, where a = 10.

$$(a + 5) \times 2$$

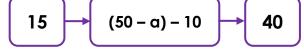
expression, where a = 2.

2b. Match the output to the correct

3a. True or false?



3b. True or false?



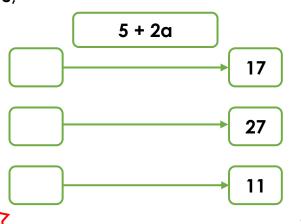




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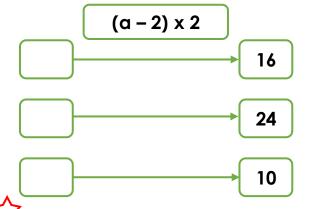
4a. Toby is using the expression 5 + 2a.

Calculate the value of a when his outputs are;



4b. Tim is using the expression  $(a - 2) \times 2$ .

Calculate the value of a when his outputs are;



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# **Use An Algebraic Rule**

# Use An Algebraic Rule

5b. Calculate the output for the following

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

$$2a + 5$$

$$(a + 3) \div 4$$

4a - 15

rules where a = 9.

$$a^2 - 7$$



$$(10a - 6) \div 2$$

$$12 + 3a$$



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

$$(a - 4) \div 2$$

2a + 3

25

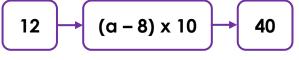
$$25 + 5a$$

expression, where a = 7.

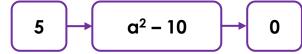
6b. Match the output to the correct



7a. True or false?



7b. True or false?

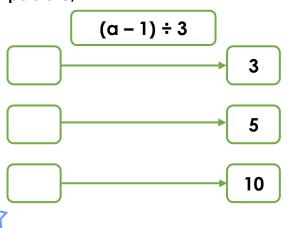






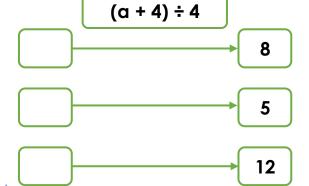
8a. Ivy is using the expression  $(a - 1) \div 3$ .

Calculate the value of a when her outputs are;



8b. Jo is using the expression  $(a + 4) \div 4$ .

Calculate the value of a when her outputs are;



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### Use An Algebraic Rule

# Use An Algebraic Rule

9b. Calculate the output for the following

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

$$\frac{1}{2}$$
 a + (25 – a)

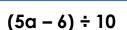
$$(a^2 - 10) \div 10$$

$$3a - (2a + 20)$$



rules where a = 5.

$$a^2 + (10a - 100)$$









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

$$\frac{1}{2}$$
 (4a x 2)

 $10a - (5a \times 2)$ 

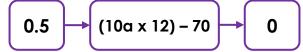


10b. Match the output to the correct expression, where a = 12.

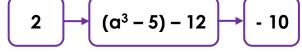
$$(2a \div 4) - 12$$

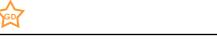


11a. True or false?



11b. True or false?

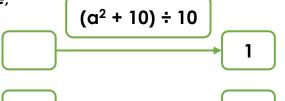






12a. Will is using the expression ( $a^2 + 10$ ) ÷ 10.

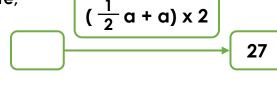
Calculate the value of a when his outputs are;





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

Calculate the value of a when his outputs are;







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# Varied Fluency Use An Algebraic Rule

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#### <u>Developing</u>

$$2\alpha$$
.  $45 - 2\alpha = 25$ ;  $(\alpha + 5) \times 2 = 30$ ;  $72 - \alpha =$ 

62

3a. True

4a. 6, 11, 3

#### **Expected**

6a. 
$$3a - 5 = 25$$
;  $(a - 4) \div 2 = 3$ ;  $2a + 3 = 23$ 

7a. True

8a. 10, 16, 31

#### **Greater Depth**

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

 $10a - (5a \times 2) = 0$ 11a. False, the correct answer is -10.

12a. 0, 9, 6

#### **Developing**

2b. 
$$9 + (a - 1) = 10$$
;  $100 - 2a = 96$ ;  $(a + 5) \times$ 

3b. False, the correct answer is 25.

4b. 10, 14, 7

#### **Expected**

6b. 
$$25 + 5a = 60$$
;  $(a \div 7) + 8 = 9$ ;  $(a - 4) \times 6$ 

= 18.

7b. False, the correct answer is 15.

8b. 28, 16, 44

#### **Greater Depth**

10b. 
$$5a \div (a-2) = 6$$
;  $(2a \div 4) - 12 = -6$ ;

 $(2\alpha + 7.5) \times 2 = 63$ 

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

12b. 9, 20, 3