

Varied Fluency

Step 4: Substitution

National Curriculum Objectives:

Mathematics Year 6: (6A2) [Use simple formulae](#)

Mathematics Year 6: (6A3) [Generate and describe linear number sequences](#)

Mathematics Year 6: (6A4) [Find pairs of numbers that satisfy an equation with two unknowns](#)

Differentiation:

Developing Questions to support substitution into simple equations to find a value. 2 substitutions with whole numbers only and all 4 operations.

Expected Questions to support substitution into simple equations to find a value. 2 or 3 substitutions using whole numbers, some decimals, fractions and all 4 operations. Some examples may require knowledge or the order of operations.

Greater Depth Questions to support substitution into simple equations to find a value. 3 or 4 substitutions using whole numbers, negative numbers, decimals, fractions, mixed numbers and all 4 operations. Some examples require knowledge of the order of operations.

More [Year 6 Algebra](#) resources.

Did you like this resource? Don't forget to [review](#) it on our website.

Substitution

1a. Match the children's calculations to their correct answers if $a = 4$ and $b = 5$.



Mo

$$(a + b) \times 10$$

10



Millie

$$(b - a) \times 10$$

90

30



VF

Substitution

1b. Match the children's calculations to their correct answers if $a = 3$ and $b = 8$.



Euan

$$b - 2a$$

16



Mia

$$b + 2a$$

14

2



VF

2a. Circle the correct answer.

If $a = 10$ and $b = 5$,
 $2a + b = ?$

35

25

15



VF

2b. Circle the correct answer.

If $a = 7$ and $b = 15$,
 $2b - 2a = ?$

15

14

16



VF

3a. Tick the substitution used for this expression if the value is 225.

$$a + 2b$$

A. $a = 100, b = 25$

B. $a = 25, b = 100$

C. $a = 50, b = 100$



VF

3b. Tick the substitution used for this expression if the value is 100.

$$a - 2b$$

A. $a = 200, b = 50$

B. $a = 50, b = 200$

C. $a = 150, b = 50$



VF

4a. Complete the calculations using the values below:

= 2 and = 10

A. +

B. -

C. x



VF

4b. Complete the calculations using the values below:

= 3 and = 5

A. -

B. +

C. x



VF

Substitution

5a. Match the children's calculations to their correct answers if $a = 6$ and $b = 1.5$.



Jacob

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

18



Lily

$$2a + (a - b)$$

16.5

21



VF

Substitution

5b. Match the children's calculations to their correct answers if $a = 10$ and $b = 2.5$.



Tobias

$$a \times b$$

7.5



Hafsa

$$a - b$$

25

5.5



VF

6a. Circle the correct answer.

If $d = 10$, $e = 2$ and $f = 5$,
 $3d + e + f = ?$

35

27

37



VF

6b. Circle the correct answer.

If $a = \frac{1}{3}$, $b = 1$ and $c = 10$,
 $2b + 3a = ?$

3

9

5



VF

7a. Tick the substitution used for this expression if the value is 40.

$$r \times (r \times q)$$

A. $q = 2.5, r = 4$

B. $q = 25, r = 4.5$

C. $q = 5, r = 40.5$



VF

7b. Tick the substitution used for this expression if the value is 93.

$$4q - r$$

A. $q = 7, r = 30$

B. $q = 30, r = 25$

C. $q = 25, r = 7$



VF

8a. Complete the calculations using the values below:

★ = 5 and ● = 2

A. ★ ÷ ● + ●

B. ● × ★ + ●

C. ★ + ★ + ★



VF

8b. Complete the calculations using the values below:

◆ = 0.5 and ☾ = 8

A. ◆ × ☾ + ◆

B. ◆ + ◆ + ☾

C. ☾ - ◆ + ☾



VF

Substitution

9a. Match the children's calculations to their correct answers if $a = 1.25$, $b = 100$ and $c = 9$.



Jack

$$(3a \times b) - c$$

375



Ivy

$$(3a \times b) + c$$

366

384



VF

Substitution

9b. Match the children's calculations to their correct answers if $a = 0.2$, $b = 25$ and $c = 10$.



Will

$$5a \times (3b - c)$$

65



Lucy

$$5a \times (3b + c)$$

85

75



VF

10a. Circle the correct answer.

If $c = 5.1$, $d = 0.5$ and $e = 5$,
 $(3c + 2d) - 4e = ?$

3.7

-2.7

-3.7



VF

10b. Circle the correct answer.

If $c = \frac{1}{12}$, $d = 100$ and $e = 7.9$,
 $(12c \div d) + e = ?$

7.91

8.75

2.5



VF

11a. Tick the substitution used for this expression if the value is 54.6.

$$(a \div c) + 5b$$

A. $a = 2.5, b = 10, c = 2$

B. $a = 2.3, b = 10, c = 0.5$

C. $a = 2.4, b = 10, c = 1$



VF

11b. Tick the substitution used for this expression if the value is 176.

$$(a - 5b) \times c$$

A. $a = 25, b = 0.6, c = 8$

B. $a = 30, b = 0.8, c = 9$

C. $a = 25, b = 0.8, c = 6$



VF

12a. Complete the calculations using the values below:

= 0.25 and = 0.5

A. $(8 \text{ } \div 10) - \text{$

B. $(4 \text{ } + 2 \text{ }) + \text{$

C. $10 \text{ } + 10 \text{ } + \text{$



VF

12b. Complete the calculations using the values below:

= -2 and = 8

A. $(6 \text{ } + 2 \text{ }) + \text{$

B. $(5 \text{ } + 10 \text{ }) + \text{$

C. $4 \text{ } + 10 \text{ } \div \text{$



VF

Varied Fluency Substitution

Developing

1a. $Mo = 90$; $Millie = 10$

2a. 25

3a. B

4a. $A = 20$; $B = 8$; $C = 4$

Expected

5a. $Jacob = 21$; $Lily = 16.5$

6a. 37

7a. A

8a. $A = 4.5$; $B = 12$; $C = 15$

Greater Depth

9a. $Jack = 366$; $Ivy = 384$

10a. -3.7

11a. B

12a. $A = 0.15$; $B = 2.75$; $C = 8$

Varied Fluency Substitution

Developing

1b. $Euan = 2$; $Mia = 14$

2b. 16

3b. A

4b. $A = 0$; $B = 8$; $C = 15$

Expected

5b. $Tobias = 25$; $Hafsa = 7.5$

6b. 3

7b. C

8b. $A = 4.5$; $B = 9$; $C = 15.5$

Greater Depth

9b. $Will = 65$; $Lucy = 85$

10b. 7.91

11b. A

12b. $A = 12$; $B = 78$; $C = 2$