

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 using addition, subtraction and multiplication by 2.

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.

Greater Depth Questions to support substitution into simple equations to find a value. 3 or 4 substitutions using whole numbers, negative numbers, decimals, fractions and all 4 operations.

More [Year 6 Algebra](#) resources.

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

Substitution

1a. Match the expressions to their values.

If  = 2 and  = 10.

A.  + 

8

B.  - 

20

C.  x 

4



VF

Substitution

1b. Match the expressions to their values.

If  = 5 and  = 25.

A.  - 

20

B.  + 

30

C.  + 

50



VF

2a. True or false?

If $a = 10$ and $b = 5$.

$$2a + b = 22$$



VF

2b. True or false?

If $a = 7$ and $b = 15$.

$$2b - 2a = 16$$



VF

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

$a + 2b$

$a = 100, b = 25$

$a = 25, b = 100$



VF

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

$a - 2b$

$a = 200, b = 50$

$a = 50, b = 200$



VF

4a. Who is correct?

$a = 20, b = 4$



Mo

$(a + b) \times 10$
is $26 \times 10 = 260$



Millie

$(a - b) \times 10$
is $16 \times 10 = 160$



VF

4b. Who is correct?

$a = 5, b = 100$



Euan

$b - 2a$
is $100 - 5 = 95$



Mia

$b - 2a$
is $100 - 10 = 90$



VF

Substitution

5a. Match the expressions to their values.

If $\star = 5$ and $\bullet = 2$.

- A. $\star + \star - \bullet$ 15
- B. $\bullet + \star + \bullet$ 8
- C. $\star + \star + \star$ 9



VF

Substitution

5b. Match the expressions to their values.

If $\blacklozenge = 0.5$ and $\smile = 8$.

- A. $(\blacklozenge \times \smile) - \blacklozenge$ 3.5
- B. $\blacklozenge + \blacklozenge + \smile$ 15.5
- C. $\smile - \blacklozenge + \smile$ 9



VF

6a. True or false?

If $x = 10$, $y = 2$ and $z = 5$.

$$3x + y + z = 37$$



VF

6b. True or false?

If $x = \frac{1}{3}$, $y = 1$ and $z = 10$.

$$(6x - y) + z = 27$$



VF

7a. Tick the substitution used for this expression if the value is 75.

$r \times (p \times q)$

$p = 10, q = 2.5, r = 3$

$p = 10, q = 3, r = 2$



VF

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

$4q - r$

$q = 25, r = 7$

$q = 30, r = 25$



VF

8a. Who is correct?

$a = 12$ and $b = 6$



Jacob

$a \times b$ is $12 \times 6 = 72$



Lily

$a \times b$ is $12 \times 4 = 48$



VF

8b. Who is correct?

$a = 0.5$, $b = 10$ and $c = 9$



Tobias

$2a \times (b \times c)$
is $1 \times 90 = 90$



Hafsa

$2a \times (b \times c)$ is $10 \times 90 = 900$



VF

Substitution

9a. Match the expressions to their values.

If  = 0.25 and  = 0.5.

A. $(8 \text{  \div 10 \text{ ) - \text{  }$ 4

B. $(4 \text{  + 2 \text{ ) \div \text{  }$ 7.75

C. $10 \text{  + 10 \text{  + \text{  }$ - 0.1



VF

Substitution

9b. Match the expressions to their values.

If  = $\frac{1}{6}$ and  = 2.7.

A. $(12 \text{  + 2 \text{ ) - \text{  }$ 4.7

B. $(6 \text{  + 10 \text{ ) + \text{  }$ 33.7

C. $24 \text{  + 10 \text{  + \text{  }$ 29.7



VF

10a. True or false?

If $c = 5.1$, $d = 0.5$ and $e = 5$.

$(3c + 2d) - 4e = 3.7$



VF

10b. True or false?

If $c = \frac{1}{12}$, $d = 100$ and $e = 7.9$.

$(12c \div d) + e = 7.91$



VF

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

$(a \div c) + 5b$

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

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



VF

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

$(a - 5b) \times c$

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

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



VF

12a. Who is correct?

$a = 1.25, b = 100$ and $c = 9$



Jack

$(3a \times b) - c$
is $375 - 9 = 366$



Ivy

$(3a \times b) - c$
 $125 - 9 = 116$



VF

12b. Who is correct?

$a = 0.2, b = 25$ and $c = 10$



Will

$5a \times (3b - c)$
is $2 \times 15 = 30$



Lucy

$5a \times (3b - c)$
is $1 \times 65 = 65$



VF

Varied Fluency Substitution

Developing

- 1a. **A. 20; B. 8; C. 4**
- 2a. **False. The answer is 25.**
- 3a. **$a = 25$, $b = 100$**
- 4a. **Millie**

Expected

- 5a. **A. 8; B. 9; C. 15**
- 6a. **True**
- 7a. **$p = 10$, $q = 2.5$, $r = 3$**
- 8a. **Jacob**

Greater Depth

- 9a. **A. -0.1; B. 4; C. 7.75**
- 10a. **False. The answer is -3.7.**
- 11a. **$a = 2.3$, $b = 10$, $c = 0.5$**
- 12a. **Jack**

Varied Fluency Substitution

Developing

- 1b. **A. 20; B. 50; C. 30**
- 2b. **True**
- 3b. **$a = 200$, $b = 50$**
- 4b. **Mia**

Expected

- 5b. **A. 3.5; B. 9; C. 15.5**
- 6b. **False. The answer is 11.**
- 7b. **$q = 25$, $r = 7$.**
- 8b. **Tobias**

Greater Depth

- 9b. **A. 4.7; B. 29.7; C. 33.7**
- 10b. **True.**
- 11b. **$a = 25$, $b = 0.6$, $c = 8$**
- 12b. **Lucy**