

Varied Fluency

Step 8: Two-Step Equations

National Curriculum Objectives:

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

Differentiation:

Developing Solve two-step equations using all 4 operations with whole numbers. Bar models provided for support.

Expected Solve two-step equations using all 4 operations with whole numbers, decimals and fractions. Some bar models provided for support.

Greater Depth Solve two-step equations using all 4 operations with whole numbers, decimals, fractions and negative numbers.

More [Year 6 Algebra](#) resources.

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

Two-Step Equations

Two-Step Equations

1a. Are the following statements true or false?

A. If $x = 4$, then $2x + 1 = 9$

9				
x	x			1

B. If $y = 5$, then $4y + 1 = 20$

20				
y	y	y	y	1



VF

1b. Are the following statements true or false?

A. If $x = 3$, then $4x + 3 = 15$

15				
x	x	x	x	3

B. If $y = 7$, then $2y - 6 = 14$

14		
y	y	-6



VF

2a. What is the value of c ?

$$5c - 11 = 39$$

39					
c	c	c	c	c	-11

9

10

11



VF

2b. What is the value of c ?

$$7c - 9 = 33$$

33							
c	c	c	c	c	c	c	-9

6

7

8



VF

3a. Match each equation to the bar model to find the value of a .

$$5a + 2 = 32$$

?				
5	5	5	5	3

$$6a - 9 = 15$$

?					
4	4	4	4	4	-9

$$23 = 3 + 4a$$

?					
6	6	6	6	6	2

$$3a - 5 = 4$$

?				
22	-4	-4	-4	-4

$$2a + 7 = 23$$

?			
3	3	3	-5

$$2 = 22 - 5a$$

?		
8	8	7



VF



VF

4a. Fill in the missing operations to show how to solve the equation below.

$$3x + 4 = 22$$

22			
x	x	x	4

$$\downarrow \quad ?$$

$$3x = 18$$

18		
x	x	x

$$\downarrow \quad ?$$

$$x = 6$$

6
x



VF

4b. Fill in the missing operations to show how to solve the equation below.

$$5x - 7 = 28$$

28				
x	x	x	x	-7

$$\downarrow \quad ?$$

$$5x = 35$$

35				
x	x	x	x	x

$$\downarrow \quad ?$$

$$x = 7$$

7
x



VF

Two-Step Equations

5a. Are the following statements true or false?

A. If $x = 6$, then $3x - 2 = 16$

16			
x	x	x	-2

B. If $y = 4$, then $2y + 5 = 12$

12		
y	y	y



VF

Two-Step Equations

5b. Are the following statements true or false?

A. If $x = 6$, then $0.5x + 2 = 5$

5	
$0.5x$	2

B. If $y = 5$, then $4y - y = 25$

25				
y	y	y	y	$-y$



VF

6a. What is the value of c ?

$$11c - 16 = 116$$

116											
c	c	c	c	c	c	c	c	c	c	c	-16



9

12

14

VF

6b. What is the value of c ?

$$10c + 13 = 103$$

103										
c	c	c	c	c	c	c	c	c	c	13



8

9

10

VF

7a. Match each equation to the value of a .

$$9a \div 3 = 12$$

$$a = 0.5$$

$$\frac{1}{4}a + 11 = 14$$

$$a = 4$$

$$9 = 5 + 8a$$

$$a = 12$$



VF

7b. Match each equation to the value of a .

$$3a \div 2 = 12$$

$$a = 10$$

$$\frac{1}{2}a + 11 = 16$$

$$a = 0.25$$

$$8 = 7 + 4a$$

$$a = 8$$



VF

8a. Fill in the missing operations to show how to solve the equation below.

$$5x - 7 = 18$$



$$5x = 25$$



$$x = 5$$



VF

8b. Fill in the missing operations to show how to solve the equation below.

$$5x + 4 = 22$$



$$6x = 18$$



$$x = 3$$



VF

Two-Step Equations

Two-Step Equations

9a. Are the following statements true or false?

A. If $x = 12$, then $0.75x = 9$

B. If $y = 7$, then $3y \div y = 5$

C. If $z = 4$, then $7 - z = -1$



VF

9b. Are the following statements true or false?

A. If $x = 8$, then $0.75x + 7 = 13$

B. If $y = 11$, then $4y \times 2 = 80$

C. If $z = 7$, then $7 - 2z = 7$



VF

10a. What is the value of c ?

$$\frac{1}{5}c + 48 = 60$$

12

30

60



VF

10b. What is the value of c ?

$$\frac{1}{10}c + 91 = 100$$

10

80

90



VF

11a. Match each equation to the value of a .

$$16a + 24 = 28$$

$$a = 4$$

$$9a + 17 = 21.5$$

$$a = \frac{1}{4}$$

$$-5 = 6a - 29$$

$$a = 0.5$$



VF

11b. Match each equation to the value of a .

$$20a + 36 = 41$$

$$a = 0.5$$

$$7a + 34 = 37.5$$

$$a = 5$$

$$-4 = 6a - 34$$

$$a = \frac{1}{4}$$



VF

12a. Fill in the missing operations to show how to solve the equation below.

$$28x + 6.3 = 10.3$$



$$28x = 4$$



$$x = \frac{1}{7}$$



VF

12b. Fill in the missing operations to show how to solve the equation below.

$$45x + 9.6 = 14.6$$



$$45x = 5$$



$$x = \frac{1}{9}$$



VF

Varied Fluency Two-Step Equations

Developing

1a. True; False, $4y + 1 = 21$

2a. 10

3a. $5a + 2 = 32$ $6a - 9 = 15$ $23 = 3 + 4a$

?				
5	5	5	5	3

?					
4	4	4	4	4	-9

?				
6	6	6	6	2

4a. $-4; \div 3$

Expected

5a. True; False, $2y + 5 = 13$

6a. 12

7a. $9a \div 3 = 12$ $\frac{1}{4}a + 11 = 14$ $9 = 5 + 8a$

$a = 0.5$
$a = 4$
$a = 12$

8a. $+7; \div 5$

Greater Depth

9a. True; False, $3y \div y = 3$; False, $7 - z = 3$

10a. 60

11a. $16a + 24 = 28$ $9a + 17 = 21.5$ $-5 = 6a - 29$

$a = 4$
$a = \frac{1}{4}$
$a = 0.5$

12a. $-6.3; \div 28$

Varied Fluency Two-Step Equations

Developing

1b. True; False, $2y - 6 = 8$

2b. 6

3b. $3a - 5 = 4$ $2a + 7 = 23$ $2 = 22 - 5a$

?					
22	-4	-4	-4	-4	-4

?			
3	3	3	-5

?		
8	8	7

4b. $+7; \div 5$

Expected

5b. True; False, $4y - y = 15$

6b. 9

7b. $3a \div 2 = 12$ $\frac{1}{2}a + 11 = 16$ $8 = 7 + 4a$

$a = 10$
$a = 0.25$
$a = 8$

8b. $-4; \div 6$

Greater Depth

9b. True; False, $4y \times 2 = 88$; False, $7 - 2z = -7$

10b. 90

11b. $20a + 36 = 41$ $7a + 34 = 37.5$ $-4 = 6a - 34$

$a = 0.5$
$a = 5$
$a = \frac{1}{4}$

12b. $-9.6; \div 45$