Varied Fluency
Step 4: Find a Rule – One Step

National Curriculum Objectives:

Mathematics Year 6: (6A1) Express missing number problems algebraically
Mathematics Year 6: (6A2) Use simple formulae

Differentiation:

Developing Questions to support writing one step functions as simple algebraic equations and solving one step functions using whole numbers and addition, subtraction operations and multiplication by 2.
Expected Questions to support writing one step functions as simple algebraic equations and solving one step functions using whole numbers and all four operations where an input or output may be a decimal number.
Greater Depth Questions to support writing one step functions as simple algebraic equations and solving one step functions using whole, decimal, fractions and negative numbers and all four operations.
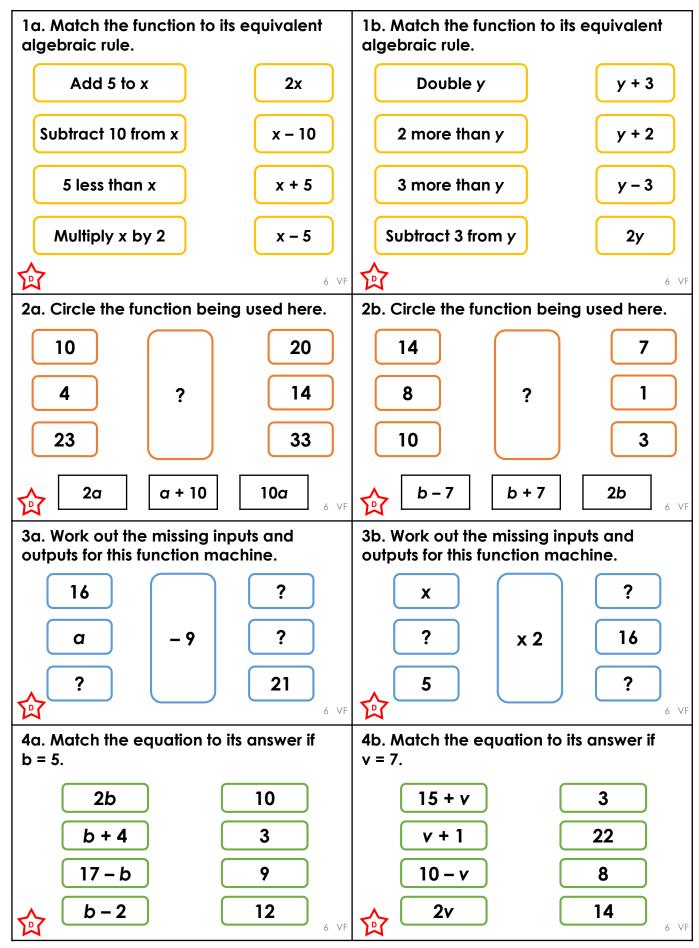
More Year 5 and Year 6 Algebra resources.

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

Find a Rule – One Step

Find a Rule – One Step

1a. Match the function to its equivalent algebraic rule.

Add 5 to x	$2x$
Subtract 10 from x	$x - 10$
5 less than x	$x + 5$
Multiply x by 2	$x - 5$

D   6   VF

1b. Match the function to its equivalent algebraic rule.

Double y	$y + 3$
2 more than y	$y + 2$
3 more than y	$y - 3$
Subtract 3 from y	$2y$

D   6   VF

2a. Circle the function being used here.

10		20
4	?	14
23		33

$2a$ $a + 10$ $10a$

D   6   VF

2b. Circle the function being used here.

14		7
8	?	1
10		3

$b - 7$ $b + 7$ $2b$

D   6   VF

3a. Work out the missing inputs and outputs for this function machine.

16		?
a	$- 9$	?
?		21

D   6   VF

3b. Work out the missing inputs and outputs for this function machine.

x		?
?	$\times 2$	16
5		?

D   6   VF

4a. Match the equation to its answer if $b = 5$.

$2b$	10
$b + 4$	3
$17 - b$	9
$b - 2$	12

D   6   VF

4b. Match the equation to its answer if $v = 7$.

$15 + v$	3
$v + 1$	22
$10 - v$	8
$2v$	14

D   6   VF

Find a Rule – One Step

5a. Match the function to its equivalent algebraic rule.

Add 2.5 to x	9x
Double x	x ÷ 9
Multiply x by 9	2x
9 times smaller than x	x + 2.5

E   6   VF

Find a Rule – One Step

5b. Match the function to its equivalent algebraic rule.

2 less than y	5 + y
Multiply y by 5	5y
Add 5 to y	y ÷ 2
Halve y	y − 2

E   6   VF

6a. Circle the function being used here.

6		18
4.2	?	12.6
3.5		10.5

4a	a + 12	3a

E   6   VF

6b. Circle the function being used here.

5.2		4.8
6	?	4
8.6		1.4

10 − b	b − 2	b − 10

E   6   VF

7a. Work out the missing inputs and outputs for this function machine.

28		?
?	÷ 4	6
a		?

E   6   VF

7b. Work out the missing inputs and outputs for this function machine.

3.6		?
11	+ 2.4	?
?		x

E   6   VF

8a. Match the equation to its answer if y = 15.

2y	3
4.4 + y	19.4
y − 12	7.5
y ÷ 2	30

E   6   VF

8b. Match the equation to its answer if t = 10.6.

t ÷ 2	13
t + 2.4	4.4
15 − t	5.6
t − 5	5.3

E   6   VF

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Varied Fluency – Find a Rule – One Step – Year 6 Expected

Find a Rule – One Step

9a. Match the function to its equivalent algebraic rule.

10 times smaller than x	10 + x
10 more than x	0.25x
10 less than x	$\frac{x}{10}$
A quarter of x	x – 10

GD   6   VF

10a. Circle the function being used here.

6.5		-10.5
9	?	-3
13		6

a – 17	a – 30	3a – 30

GD   6   VF

11a. Work out the missing inputs and outputs for this function machine.

?		x
10.5	÷ 5	?
a		?

GD   6   VF

12a. Match the equation to its answer if v = 9.9

2v	19.8
2.8 – v	5.4
$\frac{v}{3}$	3.3
-4.5 + v	-7.1

GD   6   VF

Find a Rule – One Step

9b. Match the function to its equivalent algebraic rule.

5 more than y	y – 5
Half of y	y²
5 less than y	y + 5
y times y	0.5y

GD   6   VF

10b. Circle the function being used here.

15		-10.5
18	?	-9
14.5		-10.75

r – 18.5	2r – 18	0.5r – 18

GD   6   VF

11b. Work out the missing inputs and outputs for this function machine.

m		?
?	– 26	-2.4
?		-0.8

GD   6   VF

12b. Match the equation to its answer if c = 4.8.

c – 5.3	19.2
-7.9 + c	2.4
4c	-0.5
$\frac{c}{2}$	-3.1

GD   6   VF

Varied Fluency
Find a Rule – One Step

Developing

1a. Add 5 to $x = x + 5$,

Subtract 10 from $x = x − 10$,

5 less than $x = x − 5$, Multiply x by 2 = $2x$

2a. $a + 10$

3a. 7, $a − 9$, 30

4a. $2b = 10$, $b + 4 = 9$, $17 − b = 12$, $b − 2 = 3$

Developing

1b. Double $y = 2y$, 2 more than $y = y + 2$,

3 more than $y = y + 3$,

Subtract 3 from $y = y − 3$

2b. $b − 7$

3b. $2x$, 8, 10

4b. $15 + v = 22$, $v + 1 = 8$, $10 − v = 3$, $2v = 14$

Expected

5a. Add 2.5 to $x = x + 2.5$, Double $x = 2x$,

Multiply x by 9 = $9x$,

9 times smaller than $x = x ÷ 9$

6a. $3a$

7a. 7, 24, $a ÷ 4$

8a. $2y = 30$, $4.4 + y = 19.4$, $y − 12 = 3$, $y ÷ 2 = 7.5$

Expected

5b. 2 less than $y = y − 2$,

Multiply y by 5 = $5y$, Add 5 to $y = 5 + y$,

Halve $y = y ÷ 2$

6b. $10 − b$

7b. 6, 13.4, $x − 2.4$

8b. $t ÷ 2 = 5.3$, $t + 2.4 = 13$, $15 − t = 4.4$, $t − 5 = 5.6$

Greater Depth

9a. 10 times smaller than $x = \dfrac{x}{10}$, 10 more than $x = 10 + x$, 10 less than $x = x − 10$, A quarter of $x = 0.25x$

10a. $3a − 30$

11a. $5x$, 2.1, $\dfrac{a}{5}$

12a. $2v = 19.8$, $2.8 − v = -7.1$, $\dfrac{v}{3} = 3.3$, $-4.5 + v = 5.4$

Greater Depth

9b. 5 more than $y = y + 5$, Half of $y = 0.5y$, 5 less than $y = y − 5$, y times $y = y^2$

10b. $0.5r − 18$

11b. $m − 26$, 23.6, 25.2

12b. $c − 5.3 = -0.5$, $-7.9 + c = -3.1$, $4c = 19.2$, $\dfrac{c}{2} = 2.4$

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