Varied Fluency
Step 2: Find a Rule – Two 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 finding inputs and outputs using two-step function machines, using whole numbers only.
Expected Questions to support finding inputs and outputs using two-step function machines, using all four operations and where an input or output may be a decimal number or a negative number.
**Greater Depth** Questions to support finding inputs and outputs using two-step function machines, using all four operations where an input or output may be decimal number, negative number, fraction or mixed number. Functions may include decimal numbers.

More **Year 6 Algebra** resources.

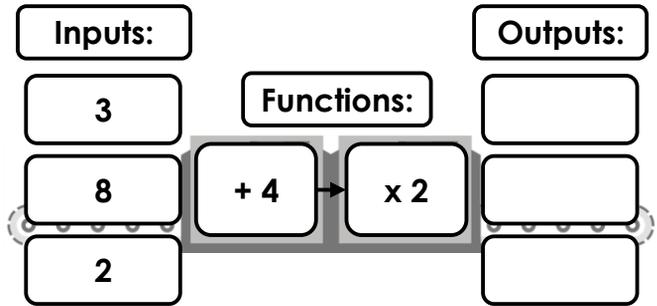**Did you like this resource? Don't forget to review it on our website.**

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Find a Rule – Two Step

1a. Write the outputs for the two-step function machine below.

Inputs:
- 10
- 5
- 4

Functions: x 2 → − 2

Outputs:

D · VF
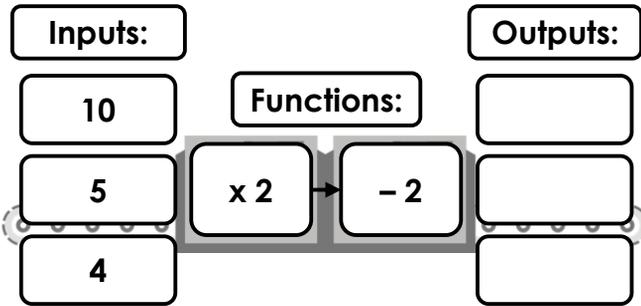
Find a Rule – Two Step

1b. Write the outputs for the two-step function machine below.

Inputs:
- 3
- 8
- 2

Functions: + 4 → x 2

Outputs:

D · VF

2a. Use the two-step function to match the inputs to the correct outputs.

Functions:

x 2, + 10

Inputs:
- 1
- 11
- 7

Outputs:
- 32
- 12
- 24

D · VF

2b. Use the two-step function to match the inputs to the correct outputs.
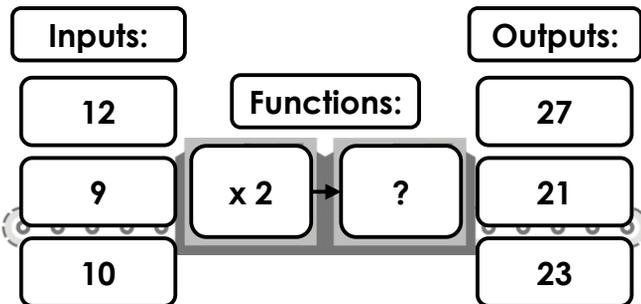
Functions:

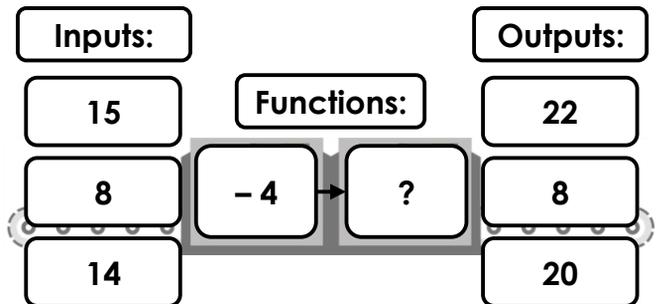x 2, + 4

Inputs:
- 8
- 3
- 11

Outputs:
- 26
- 10
- 20

D · VF

3a. Complete the two-step function machine below.

Inputs:
- 12
- 9
- 10

Functions: x 2 → ?

Outputs:
- 27
- 21
- 23

D · VF

3b. Complete the two-step function machine below.

Inputs:
- 15
- 8
- 14

Functions: − 4 → ?

Outputs:
- 22
- 8
- 20

D · VF

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Varied Fluency – Find a Rule – Two Step – Year 6 Developing

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Find a Rule – Two Step

Find a Rule – Two Step

4a. Write the outputs for the two-step function machine below.

Inputs:

4

12

8

Functions:

+ 24 → ÷ 2

Outputs:

E | VF

4b. Write the outputs for the two-step function machine below.

Inputs:

7

3

11

Functions:

x 3 → − 5
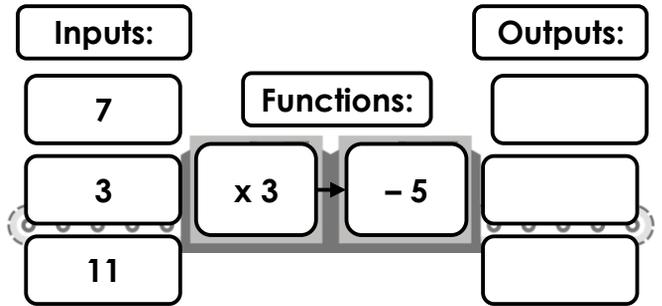
Outputs:

E | VF

5a. Use the two-step function to match the inputs to the correct outputs.

Functions:

x 4, + 5

Inputs:

4

12

9

Outputs:

41

53

21

E | VF

5b. Use the two-step function to match the inputs to the correct outputs.

Functions:

÷ 2, − 4

Inputs:

40

52

12

Outputs:

16

2

22

E | VF

6a. Complete the two-step function machine below.
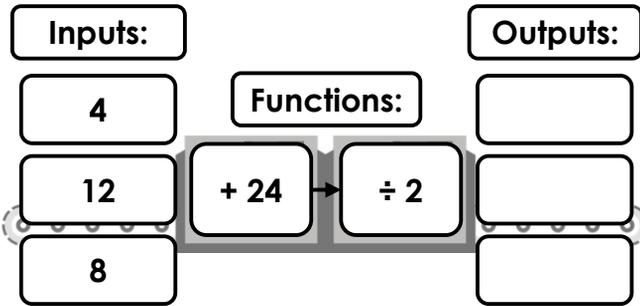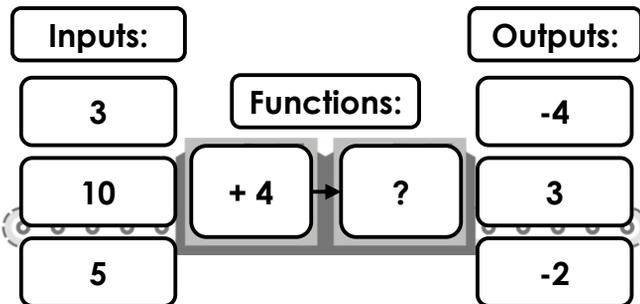
Inputs:

3

10

5

Functions:

+ 4 → ?

Outputs:

-4

3

-2

E | VF

6b. Complete the two-step function machine below.

Inputs:

7.5

12

3.5

Functions:

x 4 → ?

Outputs:

35

53

19

E | VF

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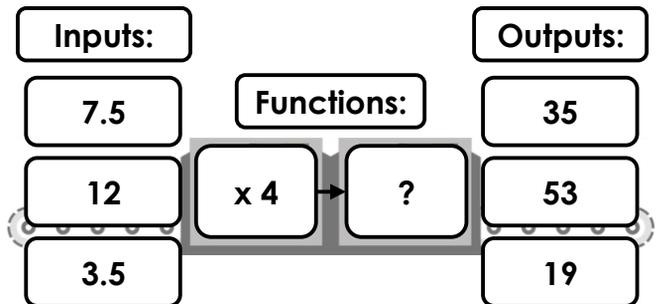
Find a Rule – Two Step

7a. Write the outputs for the two-step function machine below.

Inputs:
2.2
12.25
-3

Functions:
x 3 → x 5

Outputs:

GD   VF
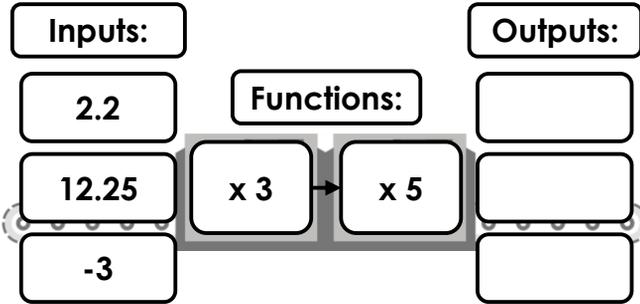
Find a Rule – Two Step

7b. Write the outputs for the two-step function machine below.

Inputs:
7.8
3.88
-11

Functions:
+ 43 → ÷ 4
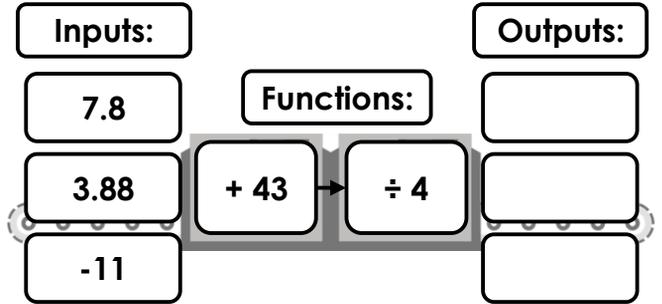
Outputs:

GD   VF

8a. Use the two-step function to match the inputs to the correct outputs.

Functions:

x 6, – 13

Inputs:
4.5
$12\frac{1}{2}$
9.5

Outputs:
44
14
62

GD   VF

8b. Use the two-step function to match the inputs to the correct outputs.

Functions:

x 12, – 3.8
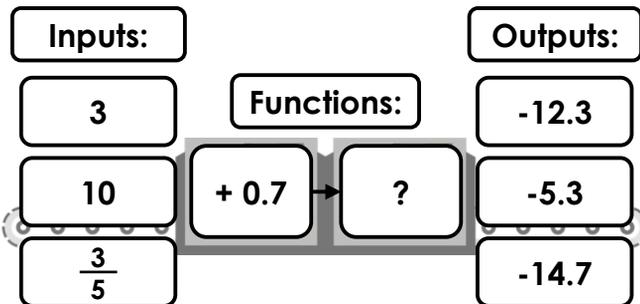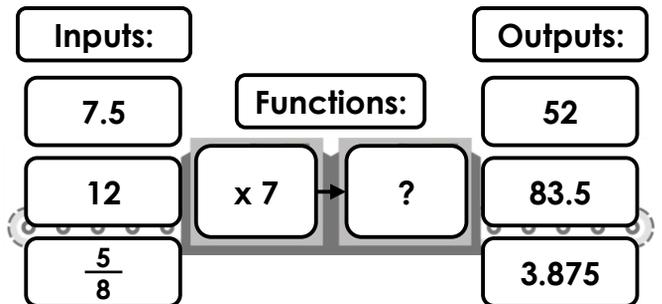
Inputs:
$9\frac{3}{4}$
7
12

Outputs:
113.2
140.2
80.2

GD   VF

9a. Complete the two-step function machine below.

Inputs:
3
10
$\frac{3}{5}$

Functions:
+ 0.7 → ?

Outputs:
-12.3
-5.3
-14.7

GD   VF

9b. Complete the two-step function machine below.

Inputs:
7.5
12
$\frac{5}{8}$

Functions:
x 7 → ?

Outputs:
52
83.5
3.875

GD   VF

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Varied Fluency – Find a Rule – Two Step – Year 6 Greater Depth

Varied Fluency
Find a Rule – Two Step

Developing

1a. 18, 8, 6

2a. 1, 12; 11, 32; 7, 24

3a. + 3

Expected

4a. 14, 18, 16

5a. 4, 21; 12, 53; 9, 41

6a. – 11

Greater Depth

7a. 33, 183.75, -45

8a. 4.5, 14; $12\frac{1}{2}$, 62; 9.5, 44

9a. – 16

Varied Fluency
Find a Rule – Two Step

1b. 14, 24, 12

2b. 8, 20; 3, 10; 11, 26

3b. x 2

4b. 16, 4, 28

5b. 40, 16; 52, 22; 12, 2

6b. + 5

7b. 12.7, 11.72, 8

8b. $9\frac{3}{4}$, 113.2; 7, 80.2; 12, 140.2

9b. – 0.5

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Varied Fluency – Find a Rule – Two Step ANSWERS