Year 7 Assessment
Algebraic Notation 1

Total Score /20

Name: _____

1 Find the output in each of these function machine when the input is 45

45 → +6000 → _____

45 → −12.5 → _____

2 marks

2 Find the missing numbers for each of these function machines.

_____ → × 3 → 48

_____ → × 3 → 4.8

0.8 → _____ → 48

3 marks

3 What is the **inverse** function of this machine?

→ × 84 →

_____

1 mark

4 Simplify these expressions.

$6 \times 3d$ _____

$e + 5e + 3e + 4e + e$ _____

$12f \div 3$ _____

1 mark

5 Write expressions to show each output.

x → +9 → _____

$x + 2$ → +9 → _____

x → × 9 → _____

$x + 2$ → × 9 → _____

2 marks

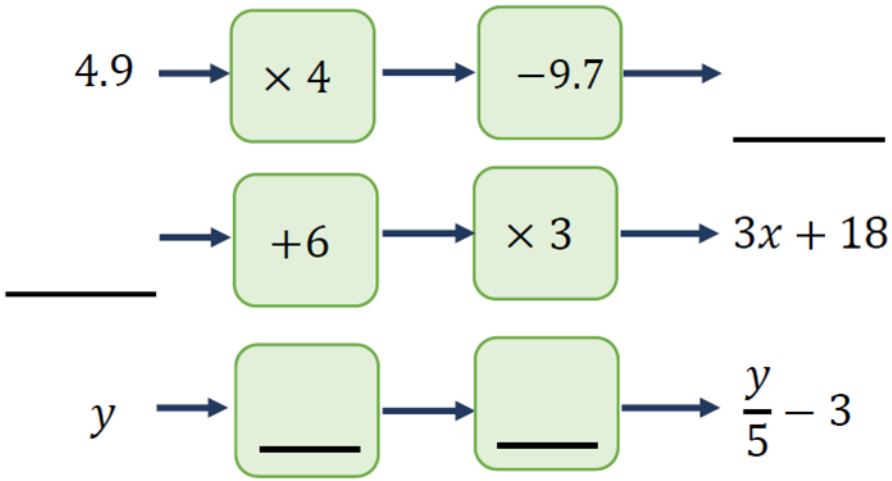
6 Circle the expressions which equal one when a=15.

$a - 15$ $\quad$ $15 - a$

$\frac{15}{a}$ $\quad$ $\frac{a}{15}$

1 mark

7 Complete the missing values.



$x = 17$ and $y = 8$

Work out the value of the expression $\frac{x+y}{5}$

3 marks

1 mark

8 If the value of y increases, what will happen to the value of the expression?

1 mark

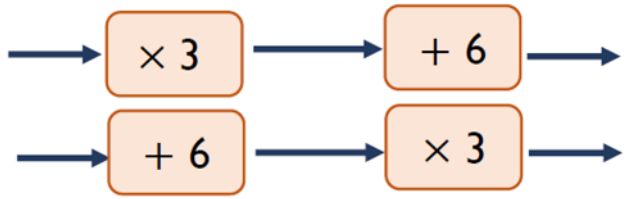
9 Tick the equations that are straight line graphs.

$y = 9 - x$ ☐ $y = 13 + 9x$ ☐

$y = 5 - \frac{x}{3}$ ☐ $y = 7x + 3$ ☐

1 mark

10 Mia says that given the same input, both function machines will always have the same output.



Give an example to show Mia is **wrong**.

1 mark

11 Find the first three terms of these sequences.

$12 - 2n$ _____, _____, _____

$6n + 8$ _____, _____, _____

2 marks

Describe a difference between the two sequences.

1 mark

Year 7 Assessment
Algebraic Notation 2

Total Score /20

Name: _____

1 Find the output in each of these function machines when the input is 85

85 → +6000 → _____

85 → −12.5 → _____

2 marks

2 Find the missing numbers for each of these function machines.

_____ → × 4 → 48

_____ → × 4 → 4.8

0.4 → _____ → 48

3 marks

3 What is the **inverse** function of this machine?

→ × 72 → _____

1 mark

4 Simplify these expressions.

$7 \times d$ _____

$e + 3e + 2e - 5e + 8e$ _____

$8f \div 2$ _____

1 mark

5 Write expressions to show each output.

x → +5 → _____

$x + 2$ → +5 → _____

x → × 5 → _____

$x + 2$ → × 5 → _____

2 marks

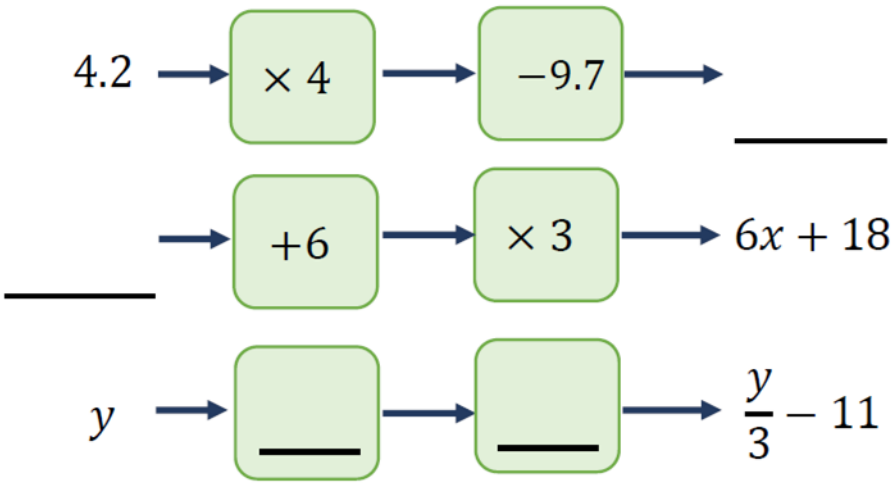
6 Circle the expressions which equal zero when a=20.

$a - 20$ $\quad$ $20 - a$

$\frac{20}{a}$ $\quad$ $\frac{a}{20}$

1 mark

7 Complete the missing values.



3 marks

8 $x = 16$ and $y = 8$

Work out the value of the expression $\frac{x+y}{3}$

1 mark

If the value of y increases, what will happen to the value of the expression?

1 mark

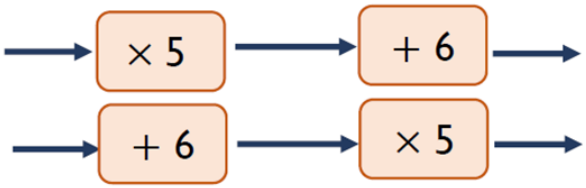
9 Tick the equations that are straight line graphs.

$y = 9 - x^2$ ☐ $y = 13 + 9$ ☐

$y = 5^2 - \frac{x}{3}$ ☐ $y = 4x^2 + 3$ ☐

1 mark

10 Mia says that given the same input, both function machines will always have the same output.



Give an example to show Mia is **wrong**.

1 mark

11 Find the first three terms of these sequences.

$6 - 2n$ _____, _____, _____

$6n + 2$ _____, _____, _____

2 marks

Describe a difference between the two sequences.

1 mark

Year 7 Assessment
Algebraic Notation 3

Total Score /20

Name: _____

1 Find the output in each of these function machines when the input is 105

105 → +700 → _____

105 → −27.5 → _____

2 marks

2 Find the missing numbers for each of these function machines.

_____ → × 1.6 → 48

_____ → × 16 → 4.8

0.3 → _____ → 48

3 marks

3 What is the **inverse** function of this machine?

→ × 67 →

_____

1 mark

4 Simplify these expressions.

$3 \times d$ _____

$e + e + 2e - 7e + e$ _____

$15f \div 3$ _____

1 mark

5 Write expressions to show each output.

x → -7 → _____

$x + 5$ → -7 → _____

x → × 3 → _____

$x + 5$ → × 3 → _____

2 marks

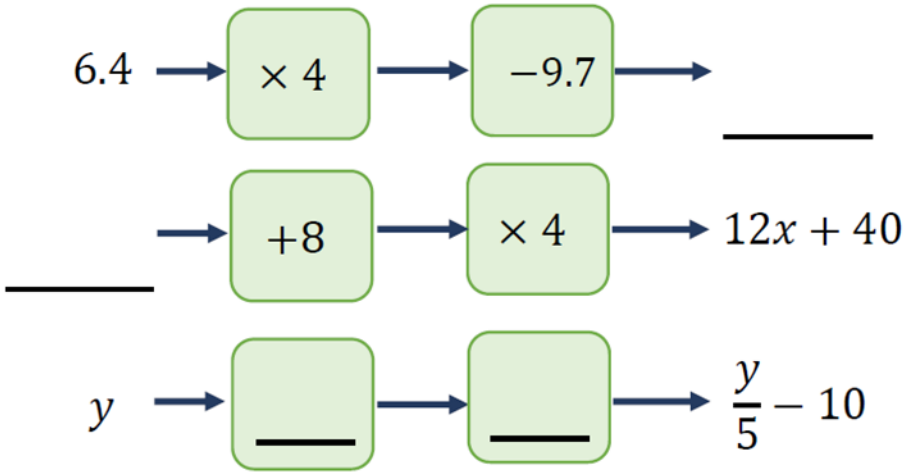
6 Circle the expressions which equal two when a=15.

$a - 30$ $\quad$ $30 - a$

$\frac{30}{a}$ $\quad$ $\frac{a}{30}$

1 mark

7 Complete the missing values.



3 marks

8 $x = 16$ and $y = 8$

Work out the value of the expression $\frac{x - y}{3}$

1 mark

If the value of y increases, what will happen to the value of the expression?

1 mark

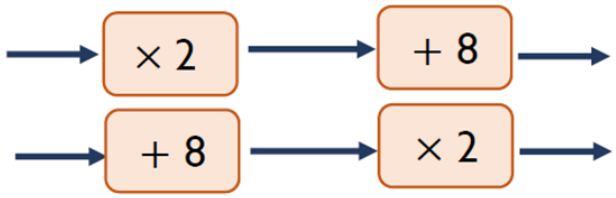
9 Tick the equations that are straight line graphs.

$y = 12 - x$ ☐ $y = 13 - 7$ ☐

$y = 5^2 - \frac{x}{3}$ ☐ $y = 4x^2 + 3x$ ☐

1 mark

10 Mia says that given the same input, both function machines will always have the same output.



Give an example to show Mia is **wrong**.

1 mark

11 Find the first three terms of these sequences.

$5 - 2n$ _____, _____, _____

$5n + 2$ _____, _____, _____

2 marks

Describe a difference between the two sequences.

1 mark