

Functions and equations

- Representing an equation using a flow diagram
- Solving an equation using inverse operations

Keywords

You should know

explanation 1a

explanation 1b

1 Write the output of each function machine.

a $5 \rightarrow$ $\boxed{-3}$ \rightarrow

b $12 \rightarrow$ $\boxed{\div 3}$ \rightarrow

c $3 \rightarrow$ $\boxed{+7}$ \rightarrow

d $0.5 \rightarrow$ $\boxed{\times 2}$ \rightarrow

e $7 \rightarrow$ $\boxed{-7}$ \rightarrow

f $-1 \rightarrow$ $\boxed{+1}$ \rightarrow

2 Write an expression for the output of each function machine.

a $x \rightarrow$ $\boxed{+2}$ \rightarrow

b $x \rightarrow$ $\boxed{\div 3}$ \rightarrow

c $x \rightarrow$ $\boxed{\times 5}$ \rightarrow

d $x \rightarrow$ $\boxed{-9}$ \rightarrow

e $y \rightarrow$ $\boxed{-4}$ \rightarrow

f $g \rightarrow$ $\boxed{\times 8}$ \rightarrow

g $t \rightarrow$ $\boxed{+11}$ \rightarrow

h $n \rightarrow$ $\boxed{\div 5}$ \rightarrow

3 Write an expression for the output of each function machine.

a $x \rightarrow$ $\boxed{\times 6}$ \rightarrow $\boxed{+5}$ \rightarrow

b $x \rightarrow$ $\boxed{\times 4}$ \rightarrow $\boxed{-3}$ \rightarrow

c $x \rightarrow$ $\boxed{\div 3}$ \rightarrow $\boxed{-7}$ \rightarrow

d $x \rightarrow$ $\boxed{\div 8}$ \rightarrow $\boxed{+1}$ \rightarrow

e $x \rightarrow$ $\boxed{+4}$ \rightarrow $\boxed{\times 5}$ \rightarrow

f $x \rightarrow$ $\boxed{-5}$ \rightarrow $\boxed{\div 10}$ \rightarrow

4 Draw a function machine to represent each expression.

a $2g + 7$

b $3(h - 9)$

c $4(t + 3)$

d $5r - 10$

e $\frac{x}{4} - 5$

f $\frac{m}{9} + 6$

g $\frac{f+4}{2}$

h $\frac{k-12}{7}$

explanation 2

5 Here are some reverse function machines. Write the value of x for each one.

a $x \leftarrow \boxed{+ 2} \leftarrow 8$

b $x \leftarrow \boxed{\div 3} \leftarrow 12$

c $x \leftarrow \boxed{+ 4} \leftarrow \boxed{\times 5} \leftarrow 7$

d $x \leftarrow \boxed{\div 9} \leftarrow \boxed{+ 7} \leftarrow 11$

6 Write the inverse of each operation.

a Add 6

b Multiply by 5

c Subtract 1

d Divide by 2

e $+ 5$

f $\times 6$

g $\div 3$

h $- 9$

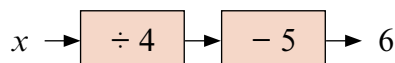
i $\times 10$

j $+ 3.4$

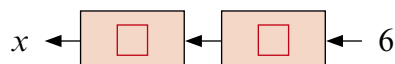
k $- 9.8$

l $\div 7.2$

7 This function machine represents the equation $\frac{x}{4} - 5 = 6$.



a Copy and complete the reverse function machine using inverse operations.



b Use the reverse function machine to solve the equation $\frac{x}{4} - 5 = 6$.

8 Follow the instructions for each equation.

i Draw a function machine.

ii Draw the reverse function machine.

iii Use the reverse function machine to solve the equation.

a $x + 11 = 37$

b $k - 17 = 6$

c $3t = 36$

d $4x + 12 = 20$

e $3n - 14 = 22$

f $5(y - 7) = 45$

g $3(q + 10) = 39$

h $2t + 9 = 20$

i $2(m - 8) = 3$

j $\frac{a}{3} - 9 = 5$

k $\frac{r}{10} + 1 = 16$

l $\frac{k - 12}{7} = 10$