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Function machines and formulae: answers

All Work out what comes out of a function machine.

1 4 Start at 7, $-4 = 3$, $+1 = 4$.

2 5 Start at 10, $\div 2 = 5$.

3 55 Start at 10, $\times 5 = 50$, $+5 = 55$.

4 13 Start at 9, $+4 = 13$.

5 4 Start at 9, $\times 3 = 27$, $\div 3 = 9$, $-5 = 4$.

6 5 Start at 8, $-3 = 5$.

7 32 Start at 10, $\times 3 = 30$, $+2 = 32$.

8 20 Start at 9, $+11 = 20$.

9 1 Start at 5, $-4 = 1$.

10 3 Start at 12, $-4 = 8$, $\times 3 = 24$, $-21 = 3$.

11 45 Start at 3, $-2 = 1$, $+8 = 9$, $\times 5 = 45$.

12 17 Start at 7, $+6 = 13$, $+4 = 17$.

Most Work backwards to find the input or a missing step.

1 7 Output 4, undo $+1 = 3$, undo $-4 = 7$ — so 7 went in.

2 3 $10 \times ? = 30$, so $? = 3$.

3 10 Output 5, undo $\div 2 = 10$ — so 10 went in.

4 11 $9 + ? = 20$, so $? = 11$.

5 10 Output 55, undo $+5 = 50$, undo $\times 5 = 10$ — so 10 went in.

6 4 $5 - ? = 1$, so $? = 4$.

7 9 Output 13, undo $+4 = 9$ — so 9 went in.

8 3 $8 \times ? = 24$, so $? = 3$.

9 9 Output 4, undo $-5 = 9$, undo $\div 3 = 27$, undo $\times 3 = 9$ — so 9 went in.

10 8 $1 + ? = 9$, so $? = 8$.

11 8 Output 5, undo $-3 = 8$ — so 8 went in.

12 6 $7 + ? = 13$, so $? = 6$.

Some Substitute a value into an equation.

1 y = 2 $2x = 6$, so $y = 8 - 6 = 2$; $y = 2 \div 1 = 2$

2 y = 5 $3x = 9$, so $y = 14 - 9 = 5$; $y = 5 \div 1 = 5$

3 y = 6 $3x = 6$, so $2y = 18 - 6 = 12$; $y = 12 \div 2 = 6$

4 y = 3 $3x = 9$, so $y = 12 - 9 = 3$; $y = 3 \div 1 = 3$

5 y = 4 $3x = 12$, so $2y = 20 - 12 = 8$; $y = 8 \div 2 = 4$

6 y = 0 $x = 16$, so $y = 16 - 16 = 0$; $y = 0 \div 1 = 0$

7 y = 7 $x = 2$, so $y = 9 - 2 = 7$; $y = 7 \div 1 = 7$

8 y = 3 $2x = 4$, so $2y = 10 - 4 = 6$; $y = 6 \div 2 = 3$

9 y = 6 $2x = 12$, so $y = 18 - 12 = 6$; $y = 6 \div 1 = 6$

10 y = 9 $3x = 6$, so $y = 15 - 6 = 9$; $y = 9 \div 1 = 9$

11 y = 16 $x = 1$, so $y = 17 - 1 = 16$; $y = 16 \div 1 = 16$

12 y = 12 $2x = 6$, so $y = 18 - 6 = 12$; $y = 12 \div 1 = 12$

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