Function Machines

State the *outputs* for the given inputs.

1 in → $\boxed{\times 2}$ → $\boxed{+ 1}$ → out

(a) 1 (b) 3 (c) 5 (d) 7

2 in → $\boxed{\times 3}$ → $\boxed{- 5}$ → out

(a) 10 (b) 8 (c) 6 (d) 4

3 in → $\boxed{\times 2}$ → $\boxed{+ 2}$ → out

(a) 1 (b) 3 (c) 5 (d) 7

4 in → $\boxed{\div 2}$ → $\boxed{+ 1}$ → out

(a) 10 (b) 12 (c) 14 (d) 16

5 in → $\boxed{\times 7}$ → $\boxed{+ 1}$ → out

(a) 1 (b) 2 (c) 3 (d) 4

6 in → $\boxed{\times 3}$ → $\boxed{- 1}$ → out

(a) 10 (b) 11 (c) 12 (d) 13

7 in → $\boxed{\times 8}$ → $\boxed{+ 2}$ → out

(a) 2 (b) 4 (c) 6 (d) 8

8 in → $\boxed{\times 6}$ → $\boxed{- 5}$ → out

(a) 8 (b) 6 (c) 4 (d) 2

9 in → $\boxed{\div 3}$ → $\boxed{+ 4}$ → out

(a) 3 (b) 6 (c) 9 (d) 18

10 in → $\boxed{\times \frac{1}{4}}$ → $\boxed{+ 5}$ → out

(a) 24 (b) 20 (c) 16 (d) 12

LIVEWORKSHEETS

Function Machines Backwards

State the *inputs* for the given outputs.

1 in → $\boxed{\times 3}$ → $\boxed{-2}$ → out

(a) 7 (b) 10 (c) 13 (d) 16

2 in → $\boxed{\div 2}$ → $\boxed{+1}$ → out

(a) 7 (b) 6 (c) 5 (d) 4

3 in → $\boxed{\times 2}$ → $\boxed{-4}$ → out

(a) 8 (b) 6 (c) 4 (d) 2

4 in → $\boxed{\div 3}$ → $\boxed{+1}$ → out

(a) 1 (b) 2 (c) 3 (d) 4

5 in → $\boxed{\times 5}$ → $\boxed{+2}$ → out

(a) 17 (b) 22 (c) 27 (d) 32

6 in → $\boxed{\div 3}$ → $\boxed{-4}$ → out

(a) 3 (b) 4 (c) 5 (d) 20

7 in → $\boxed{\times 2}$ → $\boxed{+1}$ → out

(a) 9 (b) 11 (c) 13 (d) 51

8 in → $\boxed{\div 4}$ → $\boxed{+3}$ → out

(a) 3 (b) 4 (c) 5 (d) 6

9 in → $\boxed{\times 5}$ → $\boxed{-3}$ → out

(a) 22 (b) 27 (c) 32 (d) 52

10 in → $\boxed{\times \frac{1}{2}}$ → $\boxed{-1}$ → out

(a) 0 (b) 1 (c) 2 (d) 15

LIVEWORKSHEETS

Function Machines Forwards & Backwards

State the missing inputs or outputs:

1 2, 3, 4, 5 $\boxed{\times 2} \rightarrow \boxed{-1} \rightarrow ?$

2 1, 2, 3, 4 $\rightarrow \boxed{\times 3} \rightarrow \boxed{-2} \rightarrow ?$

3 $? \rightarrow \boxed{\times 2} \rightarrow \boxed{+1} \rightarrow$ 11, 13, 15, 17

4 $? \rightarrow \boxed{\div 2} \rightarrow \boxed{-1} \rightarrow$ 5, 6, 7, 8

5 0, 1, 2, 3 $\rightarrow \boxed{\times 2} \rightarrow \boxed{+2} \rightarrow ?$

6 0, 2, 4, 6 $\rightarrow \boxed{\div 2} \rightarrow \boxed{+1} \rightarrow ?$

7 $? \rightarrow \boxed{\times 2} \rightarrow \boxed{-3} \rightarrow$ 1, 3, 5, 7

8 $? \rightarrow \boxed{\div 3} \rightarrow \boxed{-3} \rightarrow$ 2, 3, 4, 5

9 5, 6, 7, 8 $\rightarrow \boxed{\times 2} \rightarrow \boxed{+3} \rightarrow ?$

10 2, 4, 6, 8 $\rightarrow \boxed{\div 2} \rightarrow \boxed{-1} \rightarrow ?$

11 $? \rightarrow \boxed{\times 3} \rightarrow \boxed{+3} \rightarrow$ 12, 15, 18, 21

12 $? \rightarrow \boxed{\div 2} \rightarrow \boxed{-2} \rightarrow$ 2, 4, 6, 8

13 1, 2, 3, 4 $\rightarrow \boxed{\times 6} \rightarrow \boxed{-1} \rightarrow ?$

14 9, 15, 21, 27 $\rightarrow \boxed{\div 3} \rightarrow \boxed{+2} \rightarrow ?$

LIVEWORKSHEETS

15 ? → $\boxed{\div 2}$ → $\boxed{-1}$ → 1, 3, 5, 7

16 ?→ $\boxed{\times 2}$ → $\boxed{+5}$ → 17, 19, 21, 23

17 2, 3, 4, 5 → $\boxed{\times 5}$ → $\boxed{-1}$ → ?

18 ? → $\boxed{\times 3}$ → $\boxed{+2}$ → 8, 11, 14, 17

19 2, 3, 4, 5 → $\boxed{\times 7}$ → $\boxed{+2}$ → ?

20 ? → $\boxed{\div 5}$ → $\boxed{-4}$ → 1, 2, 3, 4

LIVEWORKSHEETS