

UNIT 7 *Number Patterns and Sequences*

Extra Exercises 7.1

1.
 - (a) Write down the first 5 multiples of 2.
 - (b) What is the 6th multiple of 2?
 - (c) What is the 100th multiple of 2?
 - (d) What is the 101st multiple of 2?

2. On a 10×10 number square, shade the multiples of 15.
Copy the sentences below and fill in the missing numbers.
 - (a) The 4th multiple of 15 is
 - (b) The 6th multiple of 15 is
 - (c) The 99th multiple of 15 is
 - (d) The th multiple of 15 is 75.
 - (e) The th multiple of 15 is 1500.
 - (f) The th multiple of 15 is 600.

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Extra Exercises 7.2

1. Write down the next 3 terms in each sequence:
 - (a) 14, 18, 22, 26, 30, ..., ..., ...
 - (b) 3, 10, 17, 24, 31, ..., ..., ...
 - (c) 17, 19, 21, 23, 25, ..., ..., ...
 - (d) 11, 16, 21, 26, 31, ..., ..., ...
 - (e) 5, 17, 29, 41, 53, ..., ..., ...

2. What are the missing numbers in each of these sequences?
 - (a) ..., 17, 15, 13, ...
 - (b) 8, 11, ..., 17, ...
 - (c) 5, ..., 27, 38, ...
 - (d) 84, ..., 76, 72, ...
 - (e) 98, 109, ..., 131, ...

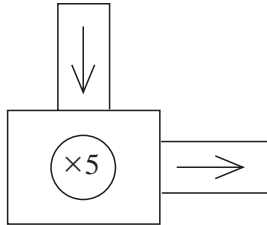
3. Copy these numbers and add the next 3 to each list of multiples.
 - (a) 4, 8, 12, 16, 20, ...
 - (b) 13, 26, 39, 52, ...
 - (c) 20, 40, 60, 80, ...
 - (d) 50, 100, 150, 200, ...
 - (e) 16, 32, 48, 64, ...
 - (f) 7.2, 6.9, 6.6, 6.3, 6.0, ...
 - (g) $10, 9\frac{1}{2}, 9, 8\frac{1}{2}, 8, \dots$
 - (h) $4, 3\frac{3}{4}, 3\frac{1}{2}, 3, 2\frac{3}{4}, \dots$

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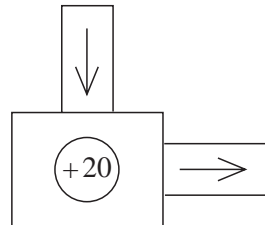
Extra Exercises 7.3

1. What sequence do you get when 1, 2, 3, 4, 5, ... is put into each of these machines?

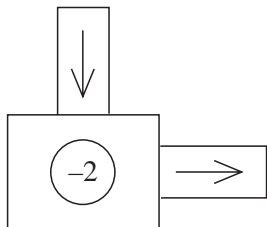
(a)



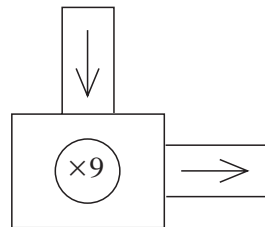
(b)



(c)



(d)



2. What number machine is needed to get each of the following sequences from 1, 2, 3, 4, 5, ...?

(a) 11, 12, 13, 14, 15, ...

(b) 20, 40, 60, 80, 100, ...

(c) 17, 18, 19, 20, 21, ...

(d) 11, 22, 33, 44, 55, ...

(e) 1.5, 2.5, 3.5, 4.5, 5.5, ...

(f) 0.5, 1.5, 2.5, 3.5, 4.5, ...

What is the formula for each of these sequences?

3. Write down the first 6 terms of the sequences given by these formulae:

(a) $2n$

(b) $6n$

(c) $n + 7$

(d) $10n - 1$

(e) $4n + 3$

(f) $3n - 2$

What is the 10th term of each sequence?

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Extra Exercises 7.4

1. Explain why the formula for the n th term of the sequence

6, 9, 12, 15, 18, 21, ...

is $3n + 6$.

2. Find a formula for the n th term of these sequences:

(a) 8, 13, 18, 23, 28, ...

(b) 16, 17, 18, 19, 20, ...

(c) 11, 13, 15, 17, 19, ...

(d) 6, 11, 16, 21, 25, ...

(e) 80, 75, 70, 65, 60, ...

3. (a) Write down the first 6 multiples of 12.
(b) Write the formula for the n th term of the sequence in (a).
(c) Write down the formula for the n th term of the sequence:

17, 29, 41, 53, 65, 77, ...

Extra Exercises 7.1

Answers

1. (a) 2, 4, 6, 8, 10
 (b) 12
 (c) 200
 (b) 202

2.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

- (a) 60 (b) 90 (c) 1485 (d) 5 (e) 100 (f) 40

Extra Exercises 7.2

Answers

1. (a) 34, 38, 42
(b) 38, 45, 52
(c) 27, 29, 31
(d) 36, 41, 46
(e) 65, 77, 89

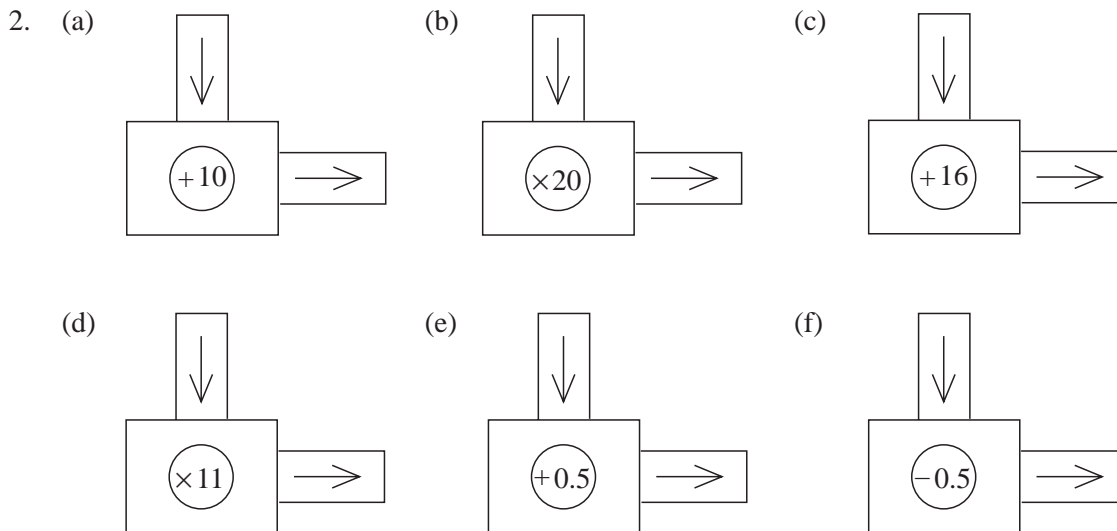
2. (a) 19 (b) 14 (c) 16 (d) 80 (e) 120

3. (a) 24, 28, 32
(b) 65, 78, 91
(c) 100, 120, 140
(d) 250, 300, 350
(e) 80, 96, 112
(f) 5.7, 5.4, 5.1
(g) $7\frac{1}{2}$, 7, $6\frac{1}{2}$
(h) $2\frac{1}{2}$, $2\frac{1}{4}$, 2

Extra Exercises 7.3

Answers

1. (a) 5, 10, 15, 20, 25, ...
 (b) 21, 22, 23, 24, 25, ...
 (c) -1, 0, 1, 2, 3, ...
 (d) 9, 18, 27, 36, 45, ...



Formulae: (a) $n + 10$ (b) $20n$ (c) $n + 16$
 (d) $11n$ (e) $n + 0.5$ (f) $n - 0.5$

3. (a) 2, 4, 6, 8, 10, 12, ..., 20
 (b) 6, 12, 18, 24, 30, 36, ..., 60
 (c) 8, 9, 10, 11, 12, 13, ..., 17
 (d) 9, 19, 29, 39, 49, 59, ..., 99
 (e) 7, 11, 15, 19, 23, 27, ..., 43
 (f) 1, 4, 7, 10, 13, 16, ..., 28

Extra Exercises 7.4

Answers

1. $n = 1$ gives $3 \times 1 + 6 = 9$
 $n = 2$ gives $3 \times 2 + 6 = 12$, etc.

2. (a) $5n + 3$
(b) $n + 15$
(c) $2n + 9$
(d) $5n + 1$
(e) $85 - 5n$

3. (a) 12, 24, 36, 48, 60, 72
(b) $12n$
(c) $12n + 5$