

## exercise 7.2

1 Decide whether or not each table of values will give a linear graph.

**a**

<i>x</i>	-2	-1	0	1	2
<i>y</i>	-5	-3	-1	1	3

**b**

<i>x</i>	-2	-1	0	1	2
<i>y</i>	4	1	0	1	4

**c**

<i>x</i>	-3	-2	-1	0	1
<i>y</i>	15	12	9	6	3

**d**

<i>x</i>	-1	0	1	2	3
<i>y</i>	-10	-4	2	8	14

**e**

<i>x</i>	-2	-1	0	1	2
<i>y</i>	1	2	4	7	11

**f**

<i>x</i>	-4	-3	-2	-1	0
<i>y</i>	22	17	12	7	2

**g**

<i>x</i>	0	1	2	3	4
<i>y</i>	3	6	9	12	15

**h**

<i>x</i>	0	1	2	3	4
<i>y</i>	2	4	8	8	10

**i**

<i>x</i>	0	1	2	3	4
<i>y</i>	-4	-1	2	5	8

**j**

<i>x</i>	0	1	2	3	4
<i>y</i>	-5	-3	-1	1	3

2 For each of the linear relationships represented in these tables of values, find

- i the gradient.
- ii the y-intercept.
- iii the linear rule.

a

x	-3	-2	-1	0	1	2	3
y	-4	-3	-2	-1	0	1	2

b

x	-3	-2	-1	0	1	2	3
y	-6	-4	-2	0	2	4	6

c

x	-3	-2	-1	0	1	2	3
y	2	3	4	5	6	7	8

d

x	-3	-2	-1	0	1	2	3
y	-12	-8	-4	0	4	8	12

e

x	-3	-2	-1	0	1	2	3
y	-1	1	3	5	7	9	11

f

x	-3	-2	-1	0	1	2	3
y	3	2	1	0	-1	-2	-3

g

x	-3	-2	-1	0	1	2	3
y	5	4	3	2	1	0	-1

h

x	-3	-2	-1	0	1	2	3
y	-17	-11	-5	1	7	13	19

i

x	-3	-2	-1	0	1	2	3
y	15	10	5	0	-5	-10	-15

j

x	-3	-2	-1	0	1	2	3
y	-1.5	-1	-0.5	0	0.5	1	1.5

- 3 The rule for the table shown here is:

$x$	-4	-3	-2	-1	0
$y$	-0.8	-0.5	-0.2	0.1	0.4

- A**  $y = -0.8$                       **B**  $y = -0.8x + 0.4$                       **C**  $y = 0.3x + 0.4$   
**D**  $y = 0.3x - 0.8$                       **E**  $y = -0.4x - 0.8$ .

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## challenge

- 4 For each of the relationships described below (a to c), find
- the rule expressed in the form  $y = mx + b$
  - the gradient of the straight line graph.
  - the  $y$ -intercept.
    - There is a set of points where the  $y$ -coordinate is always three more than twice the  $x$ -coordinate.
    - There is a set of points where the  $y$ -coordinate is always one less than half the  $x$ -coordinate.
    - There is a set of points where the sum of the  $x$ - and  $y$ -coordinates is always three.

## exercise 7.2

- 1**
- |          |            |          |            |
|----------|------------|----------|------------|
| <b>a</b> | linear     | <b>b</b> | non-linear |
| <b>c</b> | linear     | <b>d</b> | linear     |
| <b>e</b> | non-linear | <b>f</b> | linear     |
| <b>g</b> | linear     | <b>h</b> | non-linear |
| <b>i</b> | linear     | <b>j</b> | linear     |
- 2**
- |            |     |           |         |            |              |
|------------|-----|-----------|---------|------------|--------------|
| <b>a i</b> | 1   | <b>ii</b> | (0, -1) | <b>iii</b> | $y = x - 1$  |
| <b>b i</b> | 2   | <b>ii</b> | (0, 0)  | <b>iii</b> | $y = 2x$     |
| <b>c i</b> | 1   | <b>ii</b> | (0, 5)  | <b>iii</b> | $y = x + 5$  |
| <b>d i</b> | 4   | <b>ii</b> | (0, 0)  | <b>iii</b> | $y = 4x$     |
| <b>e i</b> | 2   | <b>ii</b> | (0, 5)  | <b>iii</b> | $y = 2x + 5$ |
| <b>f i</b> | -1  | <b>ii</b> | (0, 0)  | <b>iii</b> | $y = -x$     |
| <b>g i</b> | -1  | <b>ii</b> | (0, 2)  | <b>iii</b> | $y = -x + 2$ |
| <b>h i</b> | 6   | <b>ii</b> | (0, 1)  | <b>iii</b> | $y = 6x + 1$ |
| <b>i i</b> | -5  | <b>ii</b> | (0, 0)  | <b>iii</b> | $y = -5x$    |
| <b>j i</b> | 0.5 | <b>ii</b> | (0, 0)  | <b>iii</b> | $y = 0.5x$   |
- 3** C
- 4**
- |            |                        |           |               |            |         |
|------------|------------------------|-----------|---------------|------------|---------|
| <b>a i</b> | $y = 2x + 3$           | <b>ii</b> | 2             | <b>iii</b> | (0, 3)  |
| <b>b i</b> | $y = \frac{1}{2}x - 1$ | <b>ii</b> | $\frac{1}{2}$ | <b>iii</b> | (0, -1) |
| <b>c i</b> | $x + y = 3$            | <b>ii</b> | -1            | <b>iii</b> | (0, 3)  |