

MathLinks 9 Practice and Homework Book

Chapter 6 Answers

6 Get Ready

1. a)

Time, t (h)	Distance, d (km)
0	5
2	8
4	10

b)

Time, t (s)	Speed, s (km/h)
5	60
6	50
7	40

2. a) Yes. Example: It makes sense because there can be times and temperatures between the ones labelled on the graph.

b) No. Example: It does not make sense because you can sell only whole hamburgers, not fractions of a hamburger.

3. a) This is a linear relation because the difference between the consecutive values in each row is the same (15 m in the first row and 2.1 m/s in the second row).

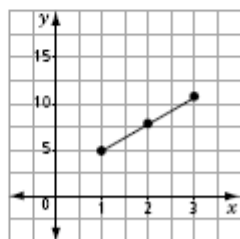
b) This is not a linear relation because the difference between consecutive values of h is not consistent even though the difference between consecutive values of t is consistent.

4. (60, 10.5)

5. Examples:

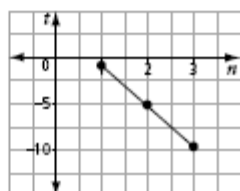
a)

x	y
1	5
2	8
3	11



b)

n	t
1	-1
2	-5
3	-9



6.1 Representing Patterns

1. a) pattern, four rails, posts

b) Example:

Number of Posts, p	Number of Rails, r
1	0
2	4
3	8
4	12

c) Example: To get r , multiply p by 4 and subtract 4.

2. a) equation b) Example: $4p - 4 = r$

c) Example: Substitute values of p from the table.

3. a)

Figure Number, f	Perimeter, p
1	8
2	14
3	20
4	26

b) $6f + 2 = p$; f = figure number, p = perimeter

c)

Figure Number, f	Perimeter, p
5	32
6	38
7	44
8	50
9	56
10	62

4. a) Example: Multiply the figure number by 3 and add 1 to get the number of toothpicks needed.

b) $t = 3f + 1$;

Figure Number, f	Number of Toothpicks, t
1	4
2	7
3	10
4	13
5	16
6	19
7	22

c) No

5. a)

x	y
1	-4.5
2	-7
3	-9.5
4	-12
5	-14.5
6	-17
7	-19.5

b) Example: $y = -2.5x - 2$ c) -169.5

6. a) Example: $C = \frac{\$179.40}{12} + \frac{\$181.80}{12}$

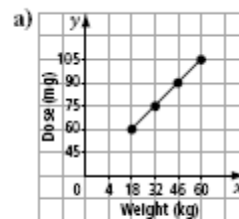
b) \$27.07

c)

Number of Players Buying	Cost per Shirt
1	\$ 196.75
2	\$ 105.85
3	\$ 75.55
4	\$ 60.40
5	\$ 51.31
6	\$ 45.25
7	\$ 40.92
8	\$ 37.68
9	\$ 35.15
10	\$ 33.13
11	\$ 31.48
12	\$ 30.10
13	\$ 28.93
14	\$ 27.94
15	\$ 27.07

6.2 Interpreting Graphs

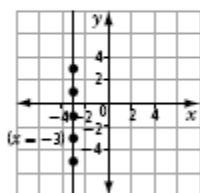
- interpolation
 - extrapolation
 - interpolation, between
 - extrapolation, beyond
- It is reasonable to interpolate, but only for whole numbers, since you cannot sell part of a seat. You cannot extrapolate, because the number of seats is finite.
- Example: 21.5 kg; extrapolation
- Yes. Example: It is possible to refill the tank, allowing more time to expire.
 - 25 L
- No. Example: The graph shows the upper and lower limits of the spring.
 - 40 kg
 - 24 cm
- Example: Approximately 36 years
 - Example: Approximately 94 cm; interpolation
- Example:



- b) 40 kg: 85 mg; 100 kg: 190 mg
c) 50 mg: 8 kg; 120 mg: 74 kg

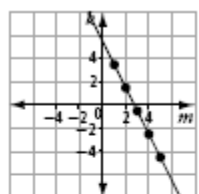
6.3 Graphing Linear Equations

- equation
- coordinate, linear relation
- interpolate, extrapolate (in either order)
- a) Example:



x	y
-3	-5
-3	-3
-3	-1
-3	1
-3	3

- b) Example:



m	k
1	3.5
2	1.5
3	-0.5
4	-2.5
5	-4.5

5. a) $y = -2x + 0.25$ b) $y = -0.5x$

6. a) $y = 0.5x + 1.5$

- b) Example: A line passes through points A to N;
 $y = 2x - 1$

- c) Example: A line passes through points A, B, C, D, E, and F; $y = 1$

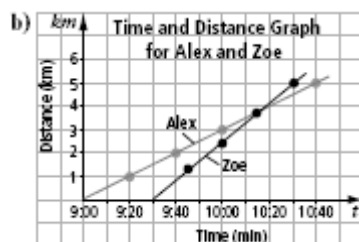
7. a) Example: $l = 1000 - \frac{99t}{60}$

- b) Example: Approximately 450 min or 7.5 h;
 interpolation

- c) Agree. Example: It takes about 7.5 h to pump
 out 750 L.

8. a) Example:

Alex	Time (min)	Distance (km)	Zoe	Time (min)	Distance (km)
	9:20	1		9:45	1.25
	9:40	2		10:00	2.50
	10:00	3		10:15	3.75
	10:20	4		10:30	5.00
	10:40	5		10:45	6.25



- c) 10:15 a.m. d) 0.5 km

6 Chapter Link

1. Examples:

- a) Air

Time, t (s)	Distance, d (m)
1	340
2	680
3	1020
4	1360
5	1700
6	2040
7	2380
8	2720
9	3060
10	3400

- b) Water

Time, t (s)	Distance, d (m)
1	1450
2	2900
3	4350
4	5800
5	7250
6	8700
7	10150
8	11600
9	13050
10	14500

c) Steel

Time, t (s)	Distance, d (m)
1	5050
2	10100
3	15150
4	20200
5	25250
6	30300
7	35350
8	40400
9	45450
10	50500

2. a) $d = 340t$ b) $d = 1450t$ c) $d = 5050t$
 3. a) approximately 4.26 s b) approximately 14.85 s
 4. Examples:
 a) approximately 0.23 s
 b) approximately 3.48 s

6 Vocabulary Link

1. i) variable
 2. e) extrapolate
 3. b) commission
 4. g) linear equation
 5. d) continuous
 6. a) coefficient
 7. h) linear relation
 8. c) constant
 9. f) interpolate

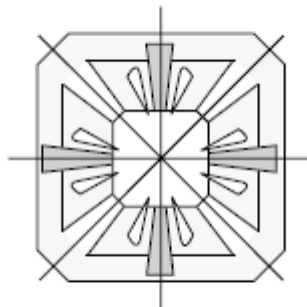
M	X	S	C	V	U	J	A	I	A	O	C	C	O	N	S	T	A	N	T
E	C	A	V	D	Z	E	T	Q	N	V	F	Y	N	N	I	D	Q	F	V
X	S	O	B	E	O	C	L	I	N	E	A	R	R	E	L	A	T	I	O
T	K	L	A	M	B	X	E	I	V	C	Y	V	H	U	C	C	J	F	U
R	L	O	I	R	I	M	Z	Q	C	K	H	F	K	O	P	C	Y	R	R
A	M	H	C	N	I	O	N	C	C	O	N	T	I	N	U	O	U	S	Z
P	B	I	O	H	E	A	N	N	X	R	N	W	D	O	E	G	A	A	
O	H	N	M	F	S	A	B	T	B	E	F	B	R	B	S	F	B	K	K
L	C	W	M	O	K	V	R	L	E	U	B	N	O	P	D	F	Z	A	D
A	P	G	I	Y	Z	T	Z	E	E	R	X	Y	J	X	P	I	F	O	H
T	D	Z	S	W	M	G	N	P	O	D	P	Z	N	H	W	C	V	V	P
E	Z	A	S	V	O	P	T	N	Z	U	W	O	T	F	I	V	A	V	
F	M	G	I	T	R	M	F	D	V	R	A	K	L	P	T	E	C	J	M
Q	K	Z	O	O	U	L	J	S	H	G	E	T	U	A	U	N	A	G	K
U	Q	C	N	B	K	V	G	L	V	Y	S	A	I	G	T	V	D	V	
I	N	R	O	P	F	M	G	G	R	E	H	U	Q	O	O	E	V	U	L
Y	K	K	A	Q	T	D	B	M	A	K	I	D	K	S	N	X	J	E	M
F	D	S	L	H	D	M	Y	M	Y	J	F	G	L	T	W	F	X	N	H

Chapters 1–6 Review

1. Example: a) $3x^2 + 2x$
 b) $3x^2 + 7x - 2$ c) $2x, 3x$
 2. a) $y = -\frac{x}{3}$ b) $y = 2x + 3$
 3. Example: a) 1.75 b) -0.8

4. $\frac{1}{2}$; the length and width of Picture 2 are half of the length and width of Picture 1.

5. a) There are 4 lines of symmetry: vertical, horizontal, and two oblique or diagonal lines.



b) 90° ; $\frac{1}{4}$ of a rotation

6. a) Estimate: 2.5; Actual: 2.59

b) Estimate: 9; Actual: 8.75

c) Estimate: 12; Actual: 12.6

7. a) 13 b) 0.216

8. Error in step 1 ($-2^2 = 4$, not -4).

Correct answer: 154

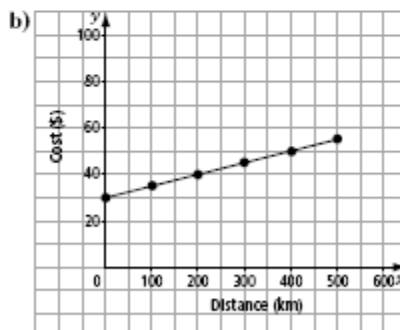
9. 137.33 cm^2

10. a) $5a^2 - 9a - 7$ b) $6x^2y - 7xy^2$

11. 4.6 cm

12. a)

Distance (km)	Cost (\$)
0	30
100	35
200	40
300	45
400	50
500	55



c) \$42.50 d) 450 km

e) Example: $C = 0.05d + 30$, where C represents cost in dollars and d represents distance in km.