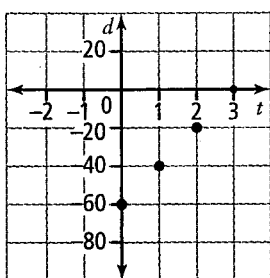


2. a)



b) Scuba Diver's Rate of Ascent

c) Answers will vary. Example: The points appear to lie in a straight line. The graph shows that to move from one point to the next, you go 1 unit horizontally and 20 units vertically.

3. a) Each consecutive value for  $t$  changes by 1. Each consecutive value for  $d$  changes by 20.

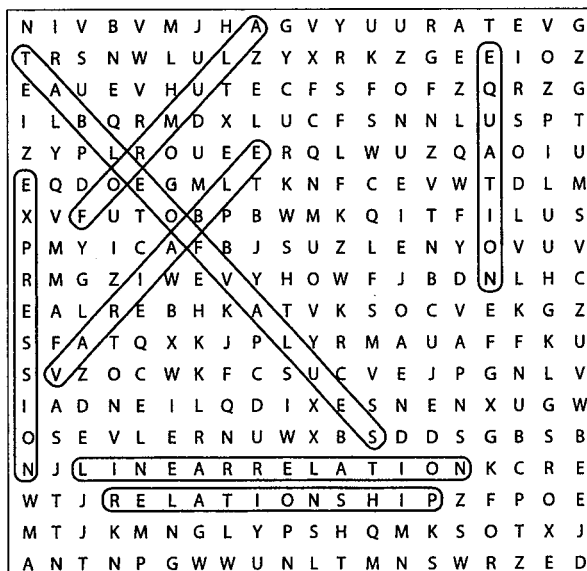
b)  $d = 20t - 60$ , where  $d$  represents distance and  $t$  represents time in minutes.

4. No, because a scuba diver cannot swim above the water level.

5. Yes, the data points appear to be in a straight line.

### 9 Vocabulary Link

1. c) formula
2. f) table of values
3. e) relationship
4. d) linear relation
5. a) equation
6. b) expression
7. g) variable



### 10 Get Ready

1. a) 19    b) 53    2.  $494 \text{ cm}^2$
3. a)  $p + 7 = 12$     b)  $x - 3 = 11$   
c)  $4s = 28$     d)  $k \div 6 = 9$
4. a) 139 cm    b) 25 min
5. a)  $2n + 4 = 18$     b)  $3x + 5 = 17$   
c)  $8y - 70 = 94$     d)  $27 = 7q + 6$
6. a)  $j = 8$     b)  $t = 3$

### 10.1 Modelling and Solving One-Step

Equations:  $ax = b$ ,  $\frac{x}{a} = b$

1. b    2. c    3. a    4. d
5. a)  $2r = 8$     b)  $-3s = 9$     c)  $\frac{x}{4} = 4$   
d)  $-4m = -16$
6. a)  $g = -8$     b)  $p = -9$     c)  $n = 30$   
d)  $b = -21$
7. Models will vary. a)  $t = -3$     b)  $b = -8$
8. a)  $-7$     b)  $-8$
9. a)  $a = -5$     b)  $k = 9$
10. a) 5    b)  $-4$
11. a) no    b) no    c) yes    d) yes
12. a) Equations may vary. Example:  $3c = 48$ ;  
 $c$  is the cost of a child's ticket.  
b)  $c = 16$
13. a)  $50i = e$     b) 50 000 h

### 10.2 Modelling and Solving Two-Step

Equations:  $ax + b = c$

1. isolate    2. reverse    3. substitution
4. negative    5. positive
6. a)  $3x + 2 = 8$ ,  $x = 2$   
b)  $3x = -6$ ;  $x = -2$   
c)  $2x - 7 = -17$ ;  $x = -5$
7. a)  $5 + 3x = -7$     b)  $4r - 6 = 14$   
c)  $13 = -6y - 11$     d)  $-89 = 9t - 26$
8. a)  $x = 3$     b)  $p = 4$     c)  $a = -3$   
d)  $d = -3$
9. a) Answers may vary. Example:  $4v - 5 = h$ ,  
where  $4v$  represents 4 times the number  
of games the Vampires won. Subtract 5  
from that to get  $h$ , the number of games  
the Hornets won.    b) 6

10. a) no b) yes c) yes d) yes  
 11. a)  $3s + 7 = 40$  b)  $s = 11$  cm  
 12. a)  $150 + 72p = r$  b) \$1302 c) 25

### 10.3 Modelling and Solving Two-Step Equations: $\frac{x}{a} + b = c$

- a) isolate b) reverse, add, divide  
c) substituting, value
- a)  $x = 14$  b)  $a = 8$
- Models will vary. a)  $x = 10$   
b)  $y = 6$  c)  $n = -36$  d)  $c = -49$
- a) Subtract 2 from each side, then multiply both sides by 6.  
b) Add 6 to each side, then multiply both sides by  $-3$ .  
c) Subtract 7 from each side, then multiply both sides by  $-5$ .  
d) Add 12 to each side, then multiply both sides by 11.
- a)  $d = -8$  b)  $n = 32$  c)  $b = 51$   
d)  $p = -13$
- a) yes b) yes c) no d) yes
- Equations will vary. Example:  
 $\frac{j}{8} + 400 = 475, j = 600$
- $f = 350$  km/h
- a)  $d = \frac{r}{3} + 137$  b) \$636 c) \$370

### 10.4 Modelling and Solving Two-Step Equations: $a(x + b) = c$

- isolate 2. undoing, opposite
- dividing, distributive
- answer, sides
- a)  $x = 6$  b)  $x = 7$  c)  $x = -3$   
d)  $x = -4$
- a)  $t = 7$  b)  $r = -18$
- a)  $x = 4$  b)  $s = 146$  c)  $x = 6$
- a) Answers will vary. Example:  
 $P = 4(l + 4)$  b) 60 m
- a)  $3(s + 5) = \frac{180}{2}$  b) 25 km/h

### 10 Link It Together

- In these answers,  $d$  represents depreciation,  $a$  represents the age of the car, and  $c$  represents the cost of the car.  
a)  $d = 1000a$  b)  $d = a \left(\frac{c}{10}\right)$   
c)  $d = (c - 2750) \frac{a}{50}$
- \$3000, \$6000, \$1035
- Answers are in italics.

Age of Car (Yr)	Value of Car (\$)
0	30 000
1	<i>27 000</i>
2	<i>24 000</i>
5	<i>15 000</i>
8	<i>6000</i>
10	<i>0</i>

### 10 Vocabulary Link

- constant
- distributive
- reverse
- equation
- linear
- isolate
- numerical coefficient
- opposite operations
- variable

### 11 Get Ready

- a) 0.8, 80% b)  $\frac{2}{3}$ ,  $66.\bar{6}\%$   
c)  $0.\overline{36}$  or 0.3636..., 36% or  $36.\overline{36}\%$   
d)  $\frac{1}{3}$ ,  $0.\bar{3}$ , or 0.3333...
- $\frac{1}{3}$ ,  $0.\bar{3}$ ,  $33.\bar{3}\%$
- a)

	1	2	3	4	5	6
A	A, 1	A, 2	A, 3	A, 4	A, 5	A, 6
B	B, 1	B, 2	B, 3	B, 4	B, 5	B, 6

- b) (A, 1), (A, 2), (A, 3), (A, 4), (A, 5),  
 (A, 6), (B, 1), (B, 2), (B, 3), (B, 4),  
 (B, 5), (B, 6)