

Number

Page 2 Whole numbers

- | | | | |
|--------|------------|------------|-----------------------------|
| 1. 80 | 6. 10 | 11. 24 | 16. \$2340 |
| 2. 60 | 7. 48 | 12. 87 600 | 17. 1191 |
| 3. 121 | 8. 4 | 13. 6 | 18. 36 |
| 4. 16 | 9. 300 | 14. 28 | 19. a) 27 740 b) 423 400 |
| 5. 45 | 10. 86 400 | 15. 5 040 | c) 1470 |

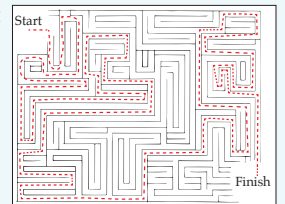
Page 3 Decimals

- | | | | |
|---------|-------------|-------------|---------------------------|
| 1. 3.71 | 6. 0.66 | 11. \$2.60 | 16. 46 hours |
| 2. 10.8 | 7. 3.12 | 12. \$2.14 | 17. Total cost = \$331.50 |
| 3. 9.45 | 8. \$57.66 | 13. \$24.01 | 18. a) \$62.10 |
| 4. 3.78 | 9. \$19.70 | 14. \$3.53 | b) \$8.28 |
| 5. 22.2 | 10. \$32.22 | 15. \$1.65 | |

Page 4 Applications

- | | | |
|-------------|-----------------------|-------------|
| 1. 65 cents | 4. \$3.50 | 7. \$107.63 |
| 2. \$257.15 | 5. \$11.38 or \$11.40 | 8. \$59.45 |
| 3. \$13.95 | 6. \$13.40 | |

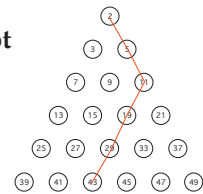
Fun Spot



Page 5 Prime Numbers

- | | | |
|-------------------------------|--|--|
| 1. Non prime
1, 4, 6, 8, 9 | 3. $2 \times 12 = 24$
$3 \times 13 = 39$
$7 \times 7 = 49$
$3 \times 21 = 63$ | 3. $3 \times 31 = 93$
$3 \times 33 = 99$
Other ans. possible |
| 2. 23 and 29 | | 4. 97 |
| 3. $3 \times 5 = 15$ | | |

Fun Spot



Page 6 Order of Operations (Brackets)

- | | | | |
|-------|-------|--|--|
| 1. 25 | 5. 0 | 8. $9 \times (7 + 1 + 5 + 50)$
$= 567$ | 10. $24 \times (10 + 2 + 1) = 312$ |
| 2. 18 | 6. 15 | | 11. $6 \times (12 - 1) = 66$ |
| 3. 1 | 7. 4 | 9. $3 \times 35 \times 36 \times 500$
$= 1\,890\,000$ | 12. $4 \times (1 + 15 + 5 + 10) = 124$ |
| 4. 4 | | | |

Page 7 Order of Operations (BEDMAS)

- | | | | |
|-------|-------|--------------------------------|-----------------------------------|
| 1. 64 | 4. 28 | 7. 44 | 10. $7 \times 8 \times 12 = 672$ |
| 2. 15 | 5. 29 | 8. $8 \times (4 - 1) = 24$ | 11. $45 \times (24 - 15) = \$405$ |
| 3. 7 | 6. 17 | 9. $50 \times (8 + 5) = \$650$ | |

Page 8 Squares, Square Roots and Powers

- | | | | |
|--------|-------|--------|---------------------------------|
| 1. 64 | 5. 16 | 9. 512 | 13. 1 |
| 2. 25 | 6. 64 | 10. 12 | 14. 9 |
| 3. 121 | 7. 16 | 11. 6 | Problem Solving |
| 4. 81 | 8. 27 | 12. 7 | 6, is the only realistic answer |

Page 9 Addition of Integers

- | | | | |
|------|--------|----------|-----------|
| 1. 2 | 6. 1 | 11. -4 | 16. -9 m |
| 2. 1 | 7. -3 | 12. -5 | 17. -9° C |
| 3. 2 | 8. -3 | 13. -2 | 18. 6° C |
| 4. 4 | 9. 4 | 14. -3 | |
| 5. 1 | 10. -3 | 15. \$35 | |

Page 10 Subtraction of Integers

- | | | | |
|-------|--------|-----------|-----------------------|
| 1. -3 | 6. -3 | 11. -1 | 16. Dropped 8 degrees |
| 2. -1 | 7. -5 | 12. 5 | 17. -235 m |
| 3. -4 | 8. 1 | 13. -2 | 18. -20 or \$20 OD |
| 4. -4 | 9. 3 | 14. 6 | |
| 5. -5 | 10. -3 | 15. -26 m | |

Page 11 Multiplication of Integers

- | | | | |
|--------|---------|------------------------|---------------------------|
| 1. -10 | 6. 18 | 11. -49 | 16. -260 m |
| 2. -18 | 7. -20 | 12. -27 | Problem Solving |
| 3. 24 | 8. 20 | 13. -40 | $1 + 2 + 4 + 8 + 16 = 31$ |
| 4. 24 | 9. 16 | 14. 9 | |
| 5. -30 | 10. -24 | 15. -1740 or \$1740 OD | |

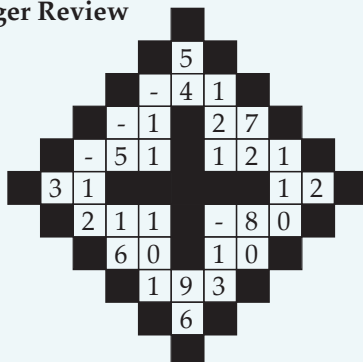
Page 12 Division of Integers

- | | | | |
|-------|--------|--------------|------------------------|
| 1. -5 | 6. 8 | 11. -7 | 16. -48 m or 48 m down |
| 2. -3 | 7. -4 | 12. -8 | Problem Solving |
| 3. 3 | 8. 5 | 13. 4 | 4 routes |
| 4. 9 | 9. 1 | 14. -7 | |
| 5. -5 | 10. -4 | 15. \$71 250 | |

Page 13 Integers on a Calculator

- | | | | |
|--------|--------|----------|--|
| 1. -7 | 5. -53 | 9. -132 | 13. -3 |
| 2. -21 | 6. -58 | 10. -400 | Fun Spot |
| 3. -34 | 7. 48 | 11. 6 | Gill gave a sigh and kicked at the soil . He looked ill after eating the big globs of hog fat. His health is a result of his diet Bill said. |
| 4. -34 | 8. 225 | 12. -4 | |

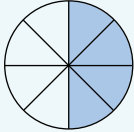
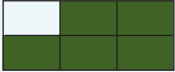
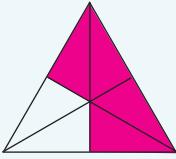
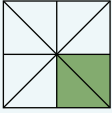
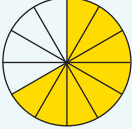
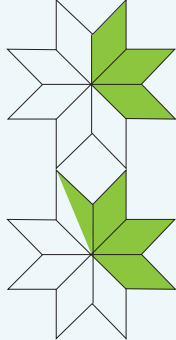
Page 14 Integer Review



Page 15 Rounding

- | | | | |
|---------|----------|-------------|-------------------------|
| 1. 4.51 | 6. 2.5 | 11. 9.3 | 16. 16.5 m ² |
| 2. 4.5 | 7. 2.52 | 12. 8.2 | Problem Solving |
| 3. 1.52 | 8. 1.0 | 13. 3.4 | Each dog gets \$7500 |
| 4. 2.13 | 9. 2.00 | 14. 6.2 m | |
| 5. 0.54 | 10. 28.5 | 15. \$56.50 | |

Page 16 Fractions

1. 	3. 	5. 	8. $\frac{18}{35}$
2. 	4. 	6. $\frac{1}{2}$	9. $\frac{1}{2}$
		7. $\frac{1}{3}$	10. $\frac{1}{6}$
			Application Problems
			

Page 17 Fractions to Decimals

- | | | | |
|--------|-------------------|--|--|
| 1. 0.5 | 6. 0.125 | 11. $\frac{4}{5}$ | 16. $\frac{3}{7} = 0.42857 \dots$ |
| 2. 0.3 | 7. $\frac{1}{2}$ | 12. $\frac{3}{8}$ | which is less than 0.45 so Kevin has the highest batting average |
| 3. 0.9 | 8. $\frac{1}{10}$ | 13. 0.75 | |
| 4. 0.6 | 9. $\frac{3}{10}$ | 14. $\frac{7}{20}$ | |
| 5. 0.2 | 10. $\frac{1}{5}$ | 15. $\frac{2}{11}$ is 0.181818 ... which is more than 0.18 | |

Page 18 Simplifying Fractions and Equivalent Fractions

- | | | | |
|------------------|--------------------|--------------------|---|
| 1. c | 6. $\frac{3}{5}$ | 11. $2\frac{2}{3}$ | 16. $\frac{53}{11}$ |
| 2. d | 7. $\frac{4}{5}$ | 12. $1\frac{8}{9}$ | 17. $\frac{1}{3}$ |
| 3. $\frac{3}{4}$ | 8. $\frac{1}{2}$ | 13. $\frac{21}{4}$ | 18. $\frac{2}{5}$ |
| 4. $\frac{3}{5}$ | 9. $1\frac{3}{4}$ | 14. $\frac{7}{2}$ | 19. $\frac{8}{18}$, $\frac{12}{27}$ and $\frac{16}{36}$ etc. |
| 5. $\frac{1}{3}$ | 10. $5\frac{1}{2}$ | 15. $\frac{15}{8}$ | |

Page 19 Fractions (+, -)

1. $\frac{3}{5}$ 6. $3\frac{4}{5}$ 11. $1\frac{5}{6}$
 2. $\frac{7}{10}$ 7. $2\frac{1}{2}$ 12. $\frac{6}{35}$
 3. 1 8. $3\frac{2}{5}$ 13. 270
 4. $\frac{3}{10}$ 9. $2\frac{1}{4}$ 14. $\frac{11}{120}$
 5. $2\frac{1}{4}$ 10. $1\frac{5}{6}$

15.

	Slices	Fraction
Vegetarian	20	$1\frac{2}{3}$
Red hot chilli	24	2

Page 20 Fractions (\times , \div)

1. $\frac{2}{25}$ 5. 4 9. $2\frac{2}{15}$ 13. $\frac{15}{28}$
 2. $\frac{1}{16}$ 6. $7\frac{1}{5}$ 10. $\frac{1}{2}$ 14. Water 360 litres
 Apples 180
 Pizza 160
 Biscuits 60 packets
 Watermelon 48.
 3. $\frac{9}{10}$ 7. 9 11. $\frac{1}{16}$
 4. $11\frac{13}{16}$ 8. 5 12. \$178

Page 21 Fraction Applications

1. $\frac{3}{5}$ 3. 9600 5. 4 pizzas 7. $\frac{11}{16}$
 2. $\frac{1}{4}$ 4. Tea towels = 12
 Clothes = 16
 Bath towels = 8
 Sheets = 12 6. \$80 **Fun Spot**
 6 and 28

Page 22 Converting Percentages

1. $\frac{3}{4}$ 5. 1 9. 0.70 13. $\frac{11}{50}$ **Fun Spot**
 876543210,
 888888888
 and 1482
 2. $\frac{1}{5}$ 6. $\frac{9}{10}$ 10. 0.15 14. 0.068
 3. $\frac{4}{5}$ 7. 0.75 11. 0.01 15. $\frac{17}{20}$
 4. $\frac{3}{10}$ 8. 0.6 12. 0.045 16. 0.125

Page 23 Fractions and Decimals to Percentages

1. 75% 5. 95% 9. 80% **Problem Solving**
 Small size = 16
 Medium size = 7
 Large size = 3
 Largest size = 1. Total = 27
 2. 70% 6. 70% 10. 65%
 3. 80% 7. 1% 11. 62%
 4. 55% 8. 65% 12. 8%

Page 24 Percentages of Amounts

- | | | | |
|--------------|--------------|----------------|------------------|
| 1. 45 litres | 5. \$2.80 | 9. \$70 000 | 13. 288 students |
| 2. \$1.10 | 6. \$256 | 10. 9 calls | |
| 3. \$18 | 7. 6630 | 11. \$9 | |
| 4. \$102 | 8. 352 girls | 12. 16.5 hours | |

Page 25 Quantity as a Percentage

- | | | | |
|----------|----------|-----------|-----------|
| 1. 90% | 5. 35% | 9. 60% | 13. 60% |
| 2. 47.5% | 6. 76% | 10. 80% | 14. 37.5% |
| 3. 65% | 7. 37.5% | 11. 90% | |
| 4. 16% | 8. 70% | 12. 62.5% | |

Page 26 Percentages

- | | | | |
|---------|--------|--------|------------------------------|
| A 15% | F \$5 | N 70% | U 12 |
| C \$210 | H 10% | R 60% | W 45% |
| D 323 | I 21 | S 40% | ADAM, HE WAS FIRST IN |
| E 75% | M \$24 | T 100% | THE HUMAN RACE |

Page 27 Standard Form

- | | | | |
|-------------------------|-----------------------|-----------------------|-------------------------|
| 1. 1.23×10^5 | 4. 9.87×10^1 | 7. 4.6×10^6 | 10. 3.942×10^9 |
| 2. 3.0×10^{11} | 5. 4.2×10^0 | 8. 1.92×10^6 | Fun Spot |
| 3. 4.05×10^4 | 6. 1.26×10^7 | 9. 6.57×10^5 | Soul music. |

Page 28 Number Crossnumber

		2	5	2				2
	7	7		0		-	4	5
3	1		-	4	7			8
3		9	5				4	0
	1	6	9		-	1	2	
	7				-	7	2	
-	1	1			1	5	0	
4		3	9	0				
6	1	2		5	1			
	0				6	0		

Page 29 Number Review

- | | | | | | | | | | | | | | | |
|-------------------------|---|---|------|-----|----------------|-----|-----|---------------|-----|-----|---------------|-----|-----|------------------------|
| 1. a) 2.233 | 5. a) 8 b) 8 | 9. a) $\frac{1}{4}$ b) $\frac{4}{5}$ | | | | | | | | | | | | |
| b) 3.93 | 6. a) 14.46 b) 0.035 | 10. Completed $\frac{7}{10}$. To go $\frac{3}{10}$ | | | | | | | | | | | | |
| c) 30.16 | 7. a) 0.8 b) 1.25 | 11. a) 75% b) 70% | | | | | | | | | | | | |
| d) 0.84 | 8. Fraction Decimal Percent | 12. a) \$6 b) 120 km | | | | | | | | | | | | |
| 2. \$415.24 | a) <table border="1" style="display: inline-table; vertical-align: middle;"> <tr><td>$\frac{3}{4}$</td><td>0.75</td><td>75%</td></tr> <tr><td>$\frac{9}{10}$</td><td>0.9</td><td>90%</td></tr> <tr><td>$\frac{1}{5}$</td><td>0.2</td><td>20%</td></tr> <tr><td>$\frac{1}{2}$</td><td>0.5</td><td>50%</td></tr> </table> | $\frac{3}{4}$ | 0.75 | 75% | $\frac{9}{10}$ | 0.9 | 90% | $\frac{1}{5}$ | 0.2 | 20% | $\frac{1}{2}$ | 0.5 | 50% | 13. 4.5×10^8 |
| $\frac{3}{4}$ | 0.75 | 75% | | | | | | | | | | | | |
| $\frac{9}{10}$ | 0.9 | 90% | | | | | | | | | | | | |
| $\frac{1}{5}$ | 0.2 | 20% | | | | | | | | | | | | |
| $\frac{1}{2}$ | 0.5 | 50% | | | | | | | | | | | | |
| 3. 67, 71, 89, 2 and 47 | b) <table border="1" style="display: inline-table; vertical-align: middle;"> <tr><td>$\frac{3}{4}$</td><td>0.75</td><td>75%</td></tr> <tr><td>$\frac{9}{10}$</td><td>0.9</td><td>90%</td></tr> <tr><td>$\frac{1}{5}$</td><td>0.2</td><td>20%</td></tr> <tr><td>$\frac{1}{2}$</td><td>0.5</td><td>50%</td></tr> </table> | $\frac{3}{4}$ | 0.75 | 75% | $\frac{9}{10}$ | 0.9 | 90% | $\frac{1}{5}$ | 0.2 | 20% | $\frac{1}{2}$ | 0.5 | 50% | 14. 1.24×10^7 |
| $\frac{3}{4}$ | 0.75 | 75% | | | | | | | | | | | | |
| $\frac{9}{10}$ | 0.9 | 90% | | | | | | | | | | | | |
| $\frac{1}{5}$ | 0.2 | 20% | | | | | | | | | | | | |
| $\frac{1}{2}$ | 0.5 | 50% | | | | | | | | | | | | |
| 4. a) 19 b) 6 | c) <table border="1" style="display: inline-table; vertical-align: middle;"> <tr><td>$\frac{3}{4}$</td><td>0.75</td><td>75%</td></tr> <tr><td>$\frac{9}{10}$</td><td>0.9</td><td>90%</td></tr> <tr><td>$\frac{1}{5}$</td><td>0.2</td><td>20%</td></tr> <tr><td>$\frac{1}{2}$</td><td>0.5</td><td>50%</td></tr> </table> | $\frac{3}{4}$ | 0.75 | 75% | $\frac{9}{10}$ | 0.9 | 90% | $\frac{1}{5}$ | 0.2 | 20% | $\frac{1}{2}$ | 0.5 | 50% | |
| $\frac{3}{4}$ | 0.75 | 75% | | | | | | | | | | | | |
| $\frac{9}{10}$ | 0.9 | 90% | | | | | | | | | | | | |
| $\frac{1}{5}$ | 0.2 | 20% | | | | | | | | | | | | |
| $\frac{1}{2}$ | 0.5 | 50% | | | | | | | | | | | | |
| | d) <table border="1" style="display: inline-table; vertical-align: middle;"> <tr><td>$\frac{3}{4}$</td><td>0.75</td><td>75%</td></tr> <tr><td>$\frac{9}{10}$</td><td>0.9</td><td>90%</td></tr> <tr><td>$\frac{1}{5}$</td><td>0.2</td><td>20%</td></tr> <tr><td>$\frac{1}{2}$</td><td>0.5</td><td>50%</td></tr> </table> | $\frac{3}{4}$ | 0.75 | 75% | $\frac{9}{10}$ | 0.9 | 90% | $\frac{1}{5}$ | 0.2 | 20% | $\frac{1}{2}$ | 0.5 | 50% | |
| $\frac{3}{4}$ | 0.75 | 75% | | | | | | | | | | | | |
| $\frac{9}{10}$ | 0.9 | 90% | | | | | | | | | | | | |
| $\frac{1}{5}$ | 0.2 | 20% | | | | | | | | | | | | |
| $\frac{1}{2}$ | 0.5 | 50% | | | | | | | | | | | | |

Measurement

Page 31 Metric Units (Length and Area)

- 1. 2 cm
- 2. 50 cm
- 3. 3 m
- 4. 12 m
- 5. 450 mm
- 6. 50 mm
- 7. 4 km
- 8. 5 cm²
- 9. 5 Ha
- 10. 200 000 m²
- 11. 17 cm
- 12. 2 m
- 13. 12 mm
- 14. 80 m
- 15. 300 mm

Application Problem

$$2000 + 100 + 800 + 100 + 3000 = 6\ 000\ \text{mm}$$

Page 32 Metric Units (Volume, Capacity and Mass)

- 1. 2 L
- 2. 30 L
- 3. 700 mL
- 4. 3 000 mL
- 5. 7 g
- 6. 12 kg
- 7. 2 000 g
- 8. 9 Tonne
- 9. 3 000 kg
- 10. 1 000 000 g
- 11. 30 g
- 12. 120 m³
- 13. 1 kg
- 14. 340 mL
- 15. 3 kg

Application Problem

$$500 + 700 + 25 + 500 + 3000 + 600 + 50 = 5.375\ \text{kg}$$

Page 33 Perimeter

- 1. 78 cm
- 2. 105 cm
- 3. 4.8 m
- 4. 7.8 m
- 5. 3.2 m
- 6. 400 cm

Communication Problem

The shortest path is 800 metres and it is the same distance no matter which path the courier takes provided they never head away from B.

Page 34 Area

- 1. 800 cm²
- 2. 105 000 mm²
- 3. 0.5625 m²
- 4. 3 m² (30 000 cm²)
- 5. 0.48 m² (480 000 mm²)
- 6. 0.25 m²

Application Problem

Garden is
3.4 m by 1.4 m = 4.76 m²

Page 35 Circles

- 1. 14 mm
- 2. 19 mm
- 3. 50 mm
- 4. 440 cm
- 5. 283 cm
- 6. d = 32 to 33 mm
C = 101 to 104 mm

Application Problem

- a) C = 2.36 m
- b) Distance = 2360 m

Page 36 Compound Figures

- 1. 680 mm
- 2. 156 cm
- 3. 377 cm
- 4. 3800 cm²
- 5. 4375 mm²
- 6. 1344 mm²

Page 37 Scales

- A = 58
- E = 34
- M = 24
- O = 52
- P = 65
- R = 50
- S = 115
- T = 350
- V = 775

What is another name for a dog ranger?

A SPOT REMOVER.

Page 38 Everyday Objects

- 1. 50 m
- 2. 300 g
- 3. 350 mL
- 4. 1200 km
- 5. 2 kg
- 6. 720 mm

7.	Actual measure
Width of a doorway	80 cm
Length of a bed	1.8 - 2 m
Distance between two lamp posts	50 - 100 m
Mass of 1 litre	1000 g

Mass of a glass of water + glass	200 to 400 g
Capacity of a tablespoon	15 mL
Capacity of a bath fill to a depth of 5 cm	20 to 40 L
Floor area of your bathroom	4 to 8 m ²

Problem Solving

Perimeter is 260 m times 3 = 780 m of wire.
Left = 220 m of wire.

Page 39 Time Including 24 Hour Time

- 1. 1540
- 2. 1450
- 3. 0510
- 4. 2212
- 5. 7:30 am
- 6. 11:54 pm
- 7. 12:01 pm

- 8. Total = 6 h 45 min.
- 9. Total = 3 min. 10 s

Problem Solving

Days = $13 \times 365 + 11 \times 7 + 3$
 = 4825
 Hours = 115 800
 Minutes = 6 948 000

Page 40 Volume of Cuboids

- C = 2 880 cm³
- E = 2.31 m³
- H = 46 200 cm³
- I = 126 m³
- K = 26 400 cm³
- T = 1.98 m³
- Y = 7 500 cm³

How do fleas get around New Zealand?
THEY ITCH-HIKE.

Page 41 Capacity

- 1. 3 litres
- 2. 25 litres
- 3. 500 mL

- 4. Answer 25 000
- Reason.** Each teaspoon is unlikely to be filled exactly with 5 mL.

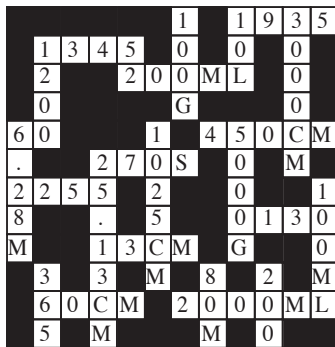
Communication Problem
Hira = 3 000 mL, too big
Kirsty = 4 725 mL, too big
Braden = 750 mL, too small

Page 42 Tables and Charts

- A = \$120
- D = \$480
- E = \$384
- F = \$107
- H = \$707
- L = \$2142
- O = \$301
- S = \$2121
- T = \$280
- Y = \$322
- U = \$170

What does it mean to be on a seafood diet?
YOU EAT ALL THE FOOD YOU SEE.

Page 43 Measurement Crossnumber



Page 44 Measurement Review

- 1. 500 cm
- 2. 3 000 m
- 3. 3 Ha
- 4. 2 kg
- 5. 1.5 L
- 6. Perimeter = 42 m
- 7. Area = 90 m²
- 8. Perimeter = 48 cm
- 9. Area = 44 cm²
- 10. 1 620 cm³
- 11. radius
- 12. 125.7 cm
- 13. 3.6 kg
- 14. 36 patties
- 15. 1730
- 16. 11:30 pm
- 17. 60
- 18. Student = \$9
- 19. Pensioner = \$6

Algebra

Page 46 Introduction to Algebra

- (a) $n + 5$
(b) $n - 2$
(c) $4n$ or $4 \times n$
(d) $n + 3$
(e) $n \div 2$ or $\frac{n}{2}$
- $A - 5$
- $20P$ or $20 \times P$
- (a) $P \div 6$ or $\frac{P}{6}$
(b) $20 - P$
- (a) $Y + 10$
(b) $Y - 6$

Fun Spot

6	2	3	8	5	1	7	9	4
4	5	1	2	7	9	3	6	8
8	9	7	3	6	4	2	1	5
5	7	2	1	3	6	4	8	9
3	4	9	7	8	5	6	2	1
1	6	8	9	4	2	5	3	7
9	3	4	6	1	7	8	5	2
2	8	5	4	9	3	1	7	6
7	1	6	5	2	8	9	4	3

Page 47 Algebraic Substitution

- 12
- 9
- 12
- 4
- 10
- 10
- 23
- 200
- 3
- 188
- \$23.50

Application Problem

$$\begin{aligned} \text{Cost} &= 140D + 1.3K \\ &= 140 \times 3 + 1.2 \times 850 \\ &= 420 + 1020 \\ &= \$1440 \end{aligned}$$

Page 48 Using Simple Formulae

- (a) \$80
(b) 5 hours
(c) $A = 10h$
- (a) \$185
(b) \$70
- \$70

Application Problem

Room cost \$300

Page 49 Solve Linear Equations $x + a = k$

- $\blacksquare = 5$
- $\blacksquare = 7$
- $\blacksquare = 5$
- $\blacksquare = 13$
- $\blacksquare = 12$
- $\blacksquare = 56$
- $x = 8$
- $x = 13$
- $x = 2$
- $x = 26$
- $x = 71$
- $x = 127$

Application Problem

$$\begin{aligned} x + 3.50 &= 4.75 \\ x &= \$1.25 \end{aligned}$$

Page 50 Solve Linear Equations $cx = k$

- $\blacksquare = 3$
- $\blacksquare = 12$
- $\blacksquare = 9$
- $\blacksquare = 4$
- $\blacksquare = 5$
- $\blacksquare = 8$
- $x = 6$
- $x = 9$
- $x = 9$
- $x = 8$
- $x = 9$
- $x = 15$

Application Problem

$$\begin{aligned} 4x &= 1800 \\ x &= \$450 \end{aligned}$$

Page 51 Solve Linear Equations $cx + d = e$

- $\blacksquare = 2$
- $\blacksquare = 4$
- $\blacksquare = 1$
- $\blacksquare = 3$
- $\blacksquare = 3$
- $x = 3$
- $x = 7$
- $x = 7$
- $x = 8$

Application Problem

$$\begin{aligned} 2x + 5 &= 13 \\ x &= \$4 \end{aligned}$$

Page 52 Word Problems

- Guess and check Equation

Matt \$20 Sam \$40 $2x + x = 60$

$3x = 60$

$x = 20$

 Matt \$20 Sam \$40
- Guess and check Equation

Small \$9 Large \$14 $x + x + 5 = 23$

$2x + 5 = 23$

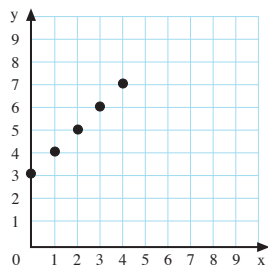
$2x = 18$

$x = 9$

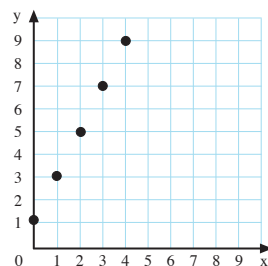
 Small \$9 Large \$14

Page 59 Graphing Patterns

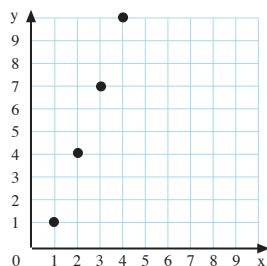
1.



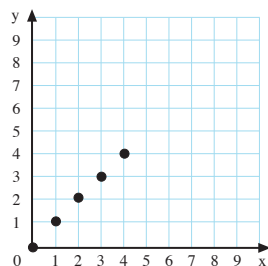
2.



3.

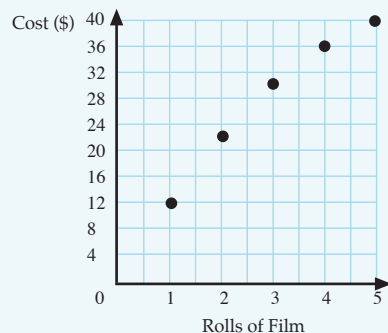


4.



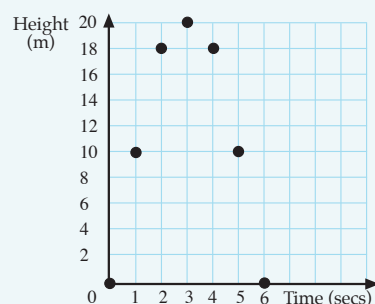
Page 60 Graphing in Practical Situations

1.

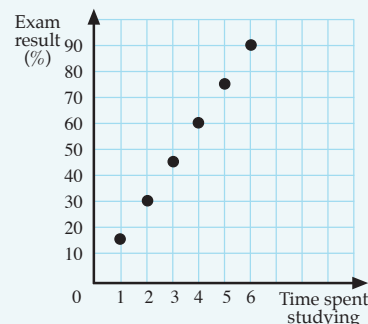


... the cheaper they are per roll.

2.



3.



Exam result = 68%

Page 61 Expanding Algebraic Expressions

I. $3m + 6$

H. $5p + 5q$

D. $5a + 5b$

1. $15 + 3x$

T. $2m + 2$

E. $4a - 4b$

A. $3p - 3q$

2. $8 - 4k$

F. $3k - 3$

N. $2m + 18$

P. $5m + 15$

3. $3a + 3b + 3c$

L. $4k - 12$

C. $6k + 24$

HALF A CENTIPEDE.

Page 62 Exponents

1. 3^2

7. q^7

Fun Spot

6	5	8	9	1	2	4	3	7
3	4	2	7	6	5	9	8	1
7	9	1	8	3	4	6	2	5
9	1	6	4	2	7	3	5	8
8	2	3	1	5	9	7	4	6
5	7	4	3	8	6	2	1	9
2	3	5	6	9	1	8	7	4
1	6	7	2	4	8	5	9	3
4	8	9	5	7	3	1	6	2

2. 4^4

8. h^4

3. 6^1

9. p^7

4. k^5

10. y^4

5. m^2

11. t^6

6. n^3

Page 63 Factorising Linear Expressions

1. $2(x + 2)$

5. $8(m + n)$

9. $6(1 + 2p)$

Fun Spot

2. $3(k + 4)$

6. $2(2p - q)$

10. $2(2y - 5k)$

No answer required.

3. $4(x - 4)$

7. $5(a - b)$

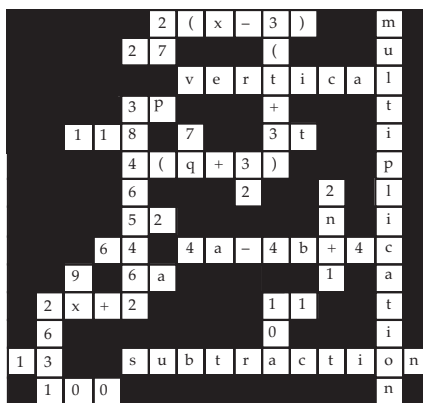
11. $7(2b + 3q)$

4. $5(3t + 5)$

8. $3(a - 5b)$

12. $2(4m + 3k)$

Page 64 Algebra Crossmaths



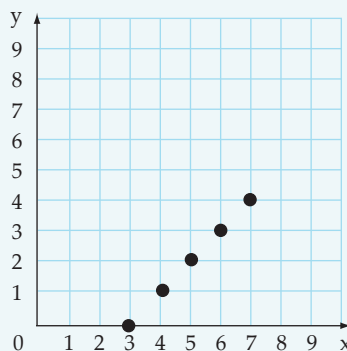
Page 65 Algebra Review 2

1. (a) $p - 7$
(b) $\frac{p}{3}$ or $\frac{1}{3}p$
2. (a) 16
(b) 8
3. (a) $x = 10$
(b) $q = 5$
4. (a) $2x$
(b) $4d$
5. (a) \$50
(b) \$365

6. (a) 48, 54, 60
(b) 17, 13, 9

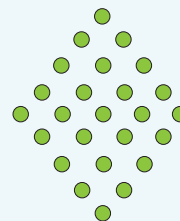
7.

x	3	4	5	6	7
Rule: Subtract 3 from x	0	1	2	3	4



8. (a) $4n + 4$
(b) $3a - 3b + 3c$
9. (a) t^3
(b) n^5
10. (a) $2(y - 4)$
(b) $3(x + 5q)$

11.



Geometry

Page 67 Types of Angles

- | | | | |
|-----------|-----------|----------------------|--------------------|
| 1. acute | 3. right | 5. XWZ is right | WZY is obtuse |
| 2. obtuse | 4. reflex | WXY is acute | XYZ (in.) is acute |
| | | XYZ (out.) is reflex | |

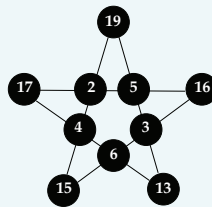
Page 68 Angles on a Straight Line

- | | | | |
|----------------|---------------|----------------|---------------------------------|
| C. 120° | S. 62° | K. 161° | What is white, yellow and flat? |
| R. 90° | N. 70° | Q. 15° | <i>A CHICKEN THAT DIDN'T</i> |
| U. 131° | T. 65° | M. 141° | <i>QUITE MAKE IT ACROSS THE</i> |
| E. 31° | A. 45° | D. 30° | <i>ROAD</i> |
| O. 56° | H. 10° | I. 24° | |

Page 69 Angles at a Point

- | | |
|---------------------|---------------------|
| 19. $X = 220^\circ$ | 17. $X = 100^\circ$ |
| 15. $X = 195^\circ$ | 4. $X = 60^\circ$ |
| 5. $X = 165^\circ$ | 16. $X = 116^\circ$ |
| 3. $X = 120^\circ$ | 13. $X = 40^\circ$ |
| 2. $X = 50^\circ$ | 6. $X = 53^\circ$ |

The Magic Star



Why is the star Magic?
Because each line totals 40.

Page 70 Vertically Opposite Angles

- | | | | |
|----------------|---------------|-----------------------------------|--|
| Y. 137° | U. 75° | A. 18° | What do you call a man with a seagull on his head? |
| C. 64° | E. 47° | R. 26° | <i>CLIFF</i> |
| I. 89° | L. 81° | How do porcupines play leap frog? | <i>VERY VERY CAREFULLY</i> |
| F. 61° | V. 28° | | |

Page 71 Measuring Angles

- | | | | |
|----------------------|-----------------------------|---------------------|--|
| 1. $DEF = 30^\circ$ | 3. $STU = 90^\circ$ (right) | 5. $XYZ = 70^\circ$ | a) 180° |
| 2. $MNO = 125^\circ$ | 4. $PQR = 167^\circ$ | $YZX = 35^\circ$ | b) 180° . The sum of the interior angles of a triangle is 180° . |
| | | $ZXY = 75^\circ$ | |

Page 72 Angle Properties of a Triangle

- | | | | |
|-------------------|-------------------|-------------------|--|
| 1. $A = 55^\circ$ | 4. $D = 52^\circ$ | 7. $G = 60^\circ$ | Application Problem |
| 2. $B = 25^\circ$ | 5. $E = 90^\circ$ | 8. $H = 15^\circ$ | a) 54° . The 3 roads form a triangle and the interior angles of a triangle sum to 180° . |
| 3. $C = 39^\circ$ | 6. $F = 37^\circ$ | 9. $I = 18^\circ$ | b) 126° . Adjacent angles on a straight line sum to 180° . |

Page 73 Angle Properties of a Quadrilateral

- | | | | |
|--------------------|--------------------|--------------------|---------------------------------|
| 1. $R = 113^\circ$ | 3. $I = 83^\circ$ | 5. $T = 104^\circ$ | 7. $B = 81^\circ$ |
| 2. $S = 34^\circ$ | 4. $U = 120^\circ$ | 6. $K = 108^\circ$ | What has four wheels and flies? |
| | | | <i>A RUBBISH TRUCK</i> |

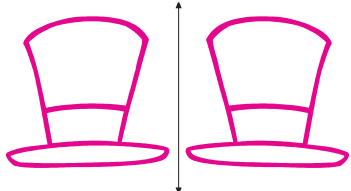
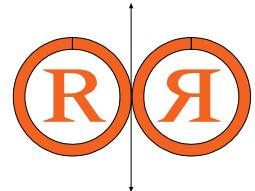
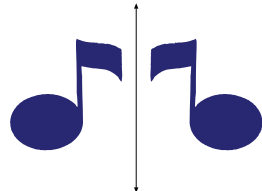
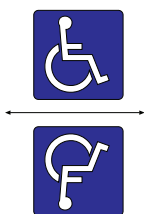
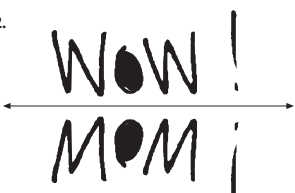
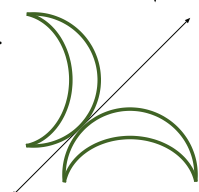
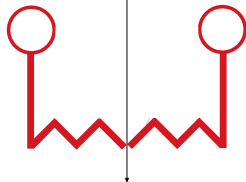
Page 74 Angle Properties of Parallel Lines

- | | | | |
|---|--|--|--|
| 1. $a = 22^\circ$
$b = 158^\circ$
$c = 158^\circ$ | 3. $g = 68^\circ$
$h = 68^\circ$
$i = 112^\circ$ | 5. $m = 68^\circ$
Cointerior angles sum to 180° , // lines.
$n = 112^\circ$. Alternate angles are equal, // lines.
$o = 74^\circ$. Corresponding angles are equal, // lines. | 6. $p = 63^\circ$. Cointerior angles sum to 180° , // lines.
$q = 117^\circ$. Cointerior angles sum to 180° , // lines. |
| 2. $d = 43^\circ$
$e = 43^\circ$
$f = 137^\circ$ | 4. $j = 32^\circ$
$k = 32^\circ$
$l = 148^\circ$ | | |

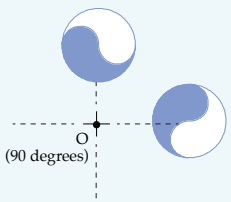
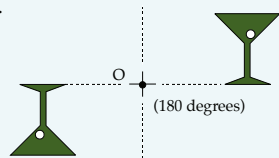
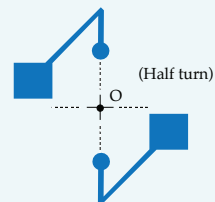
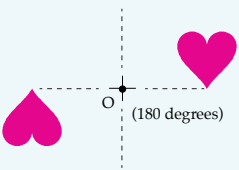
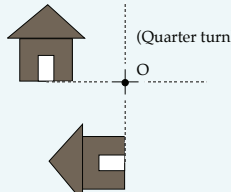
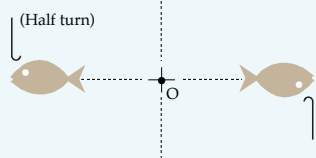
Page 75 Angle properties Mixed

- | | | |
|--|---|---|
| 1. $K = 47^\circ$, Int. angles of a tri. sum to 180° .
$C = 133^\circ$, Adj. angles on str. line sum to 180° . | 5. $U = 32^\circ$, Adj. angles on a str. line sum to 180° .
$E = 148^\circ$, Vert. opposite angles are equal. | $Y = 106^\circ$, Adj. angles on a str. line sum to 180° .
$H = 90^\circ$, Adj. angles on a str. line sum to 180° . |
| 2. $N = 43^\circ$, Adj. angles on a str. line sum to 180° . | 6. $B = 109^\circ$, Cointerior angles sum to 180° , // lines.
$S = 71^\circ$, Alternate angles are equal, // lines. | |
| 3. $O = 69^\circ$, Angles at a point sum to 360° . | | |
| 4. $A = 110^\circ$, Int. angles of a quad. sum to 360° .
$T = 70^\circ$, Adj. angles on a str. line sum to 180° . | | |
- Why do dogs eat raw meat?
BECAUSE THEY CAN'T COOK

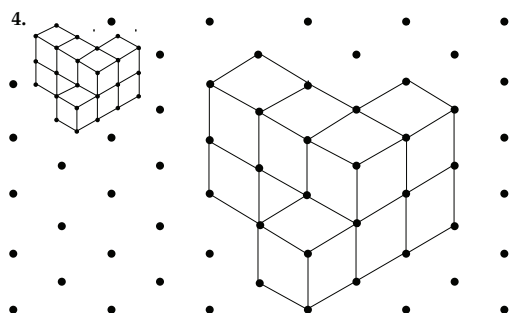
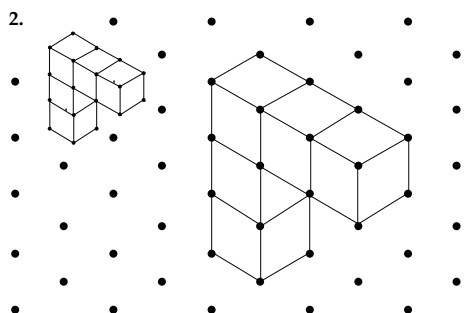
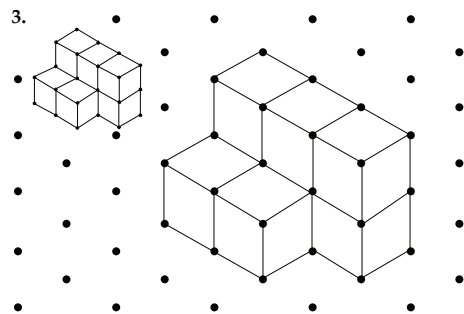
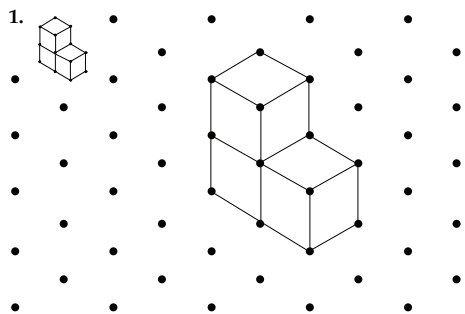
Page 76 Reflection

- | | | | |
|--|--|--|--|
| 1.  | 3.  | 5.  | 7.  |
| 2.  | 4.  | 6.  | 8. Why do cows lie down in the rain?
TO KEEP EACH UDDER DRY. |

Page 77 Rotation

- | | | |
|---|--|---|
| 1. 
(90 degrees) | 3. 
(180 degrees) | 5. 
(Half turn) |
| 2. 
(180 degrees) | 4. 
(Quarter turn) | 6. 
(Half turn) |

Page 82 Isometric Drawing



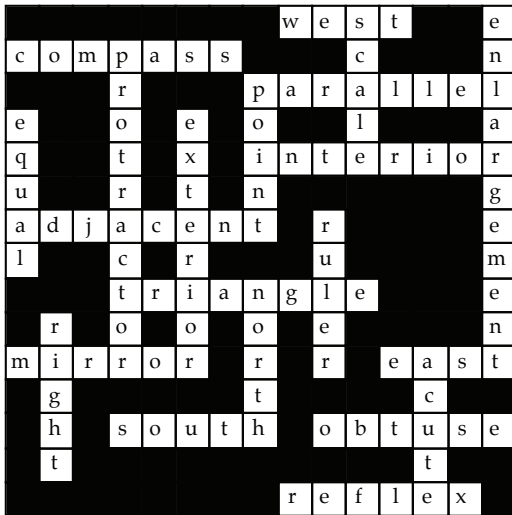
Page 83 Geometry Terms

D. 3	H. 1	I. 13	E. 8
I. 10	O. 5	N. 11	What happened to the Indian who drank too much tea?
S. 14	H. 12	R. 4	<i>HE DROWNED IN HIS TEPEE</i>
E. 19	D. 9	E. 2	
W. 6	N. 7	E. 18	
P. 17	E. 16	T. 15	

Page 84 Compass Directions and Bearings

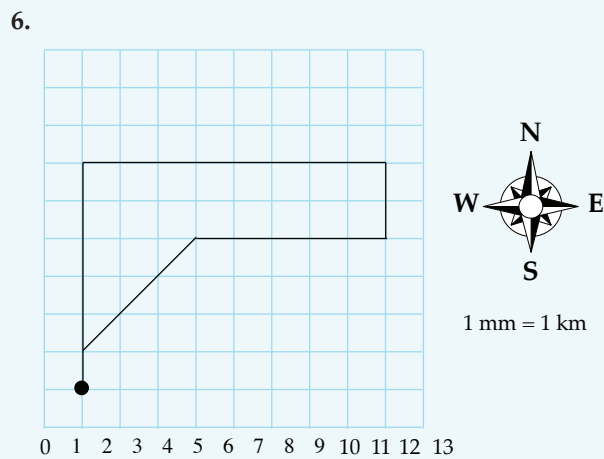
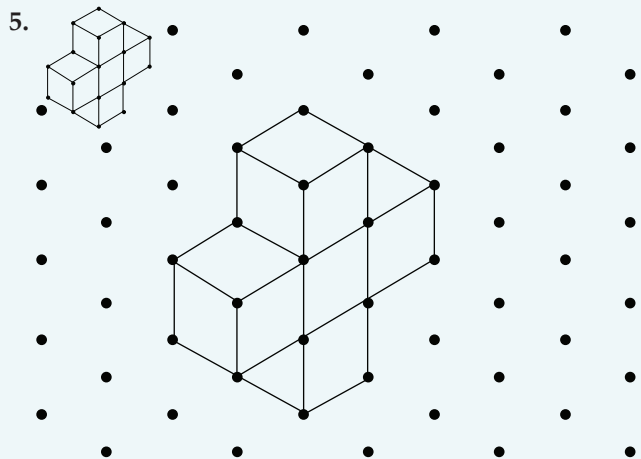
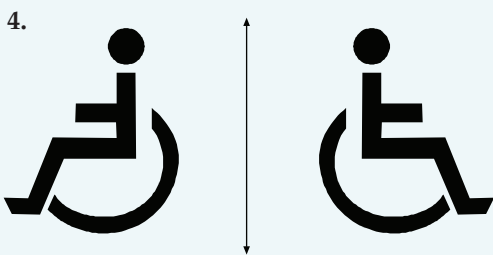
- | | | | |
|----------|----------|---------|---|
| 1. 70 km | 3. 180° | 5. West | 7. Cross should be near the
bottom tip of the island |
| 2. NE | 4. 35 km | 6. 135° | 8. 155 – 160 km |

Page 85 Geometry Crossword



Page 86 Geometry Review

1. 110°
2. A is right
B is obtuse
C is acute
3. $A = 131^\circ$
 $B = 109^\circ$
 $C = 163^\circ$
 $D = 17^\circ$
 $E = 38^\circ$
 $F = 142^\circ$
 $G = 117^\circ$
 $H = 97^\circ$
 $I = 83^\circ$
 $J = 149^\circ$



Statistics

Page 88 Statistical Investigation

Answers will vary - generally there should be a good relationship between the length of an arm (elbow to wrist) and the length of a person’s foot.

Page 89 Frequency Tables

1.

Accidents per month	Tally	Frequency
5		1
6		2
7		5
8		4
9		8
10		4
TOTAL	24	24

- 2. 5
- 3. 12
- 4. Time of the year
ie. winter, road conditions.
- 5. 30 students
- 6. $\frac{7}{30}$
- 7. $\frac{6}{30}$ or $\frac{1}{5}$
- 8. $12 \times \$25 = \300

Page 90 Mean and Range

1.

	Mean	Range
Abbott Sam	58	32
Brown David	77	36
Cairns Anna	38	33
Dauids Simon	70	39
Edwards Beth	80	19
Franks Catherine	58	31
Grantham Aaron	28	21
Howard Lori	58	21
Ingles Paul	42	33
Jackson Liz	55	47

- 2. 1st Edwards Beth
2nd Brown David
3rd Davids Simon
- 3. Grantham Aaron and Howard Lori.
Cairns Anna and Ingles Paul
- 4. Abbott Sam, Franks Catherine and Howard Lori
- 5. Grantham Aaron.
Lowest mean by a significant amount.
- 6. Lizzie, range smaller, so she is a more consistent student.

Page 91 Median and Mode

1.

	Dives in order from smallest to largest				
New Zealand	9.0	9.1	9.2	9.2	9.3
Australia	9.3	9.5	9.6	9.8	9.8
France	8.9	8.9	8.9	9.0	9.1
UK	8.6	8.8	9.0	9.0	9.5
China	9.6	9.7	9.7	9.7	9.9
USA	9.6	9.8	9.8	9.8	9.9
Japan	9.3	9.5	9.5	9.6	9.7
Taiwan	8.5	8.5	8.6	8.7	8.8
Canada	8.9	9.2	9.2	9.4	9.6
South Korea	8.1	8.1	8.1	8.4	9.3

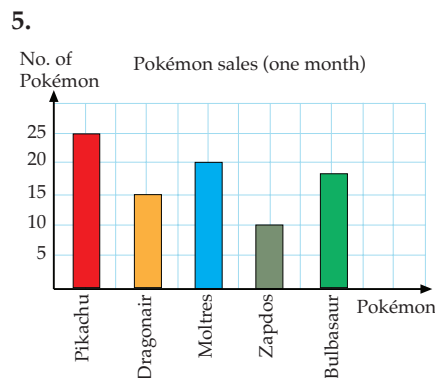
2.

	Median	Mode
New Zealand	9.2	9.2
Australia	9.6	9.8
France	8.9	8.9
UK	9.0	9.0
China	9.7	9.7
USA	9.8	9.8
Japan	9.5	9.5
Taiwan	8.6	8.5
Canada	9.2	9.2
South Korea	8.1	8.1

- 3. 1st USA
2nd China
3rd Australia
- 4. South Korea
- 5. No. Median better. Mode just gives most common dive, median gives the middle ranking of all the dives.

Page 92 Bar Graphs

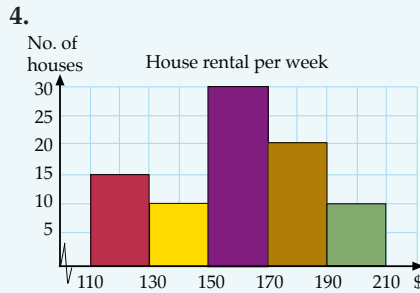
- 1. Carol
- 2. Anne
- 3. 14 minutes.
- 4. 4 minutes



- 6. 88
- 7. Pikachu
- 8. Zapdos
- 9. $\frac{18}{88}$ or $\frac{9}{44}$

Page 93 Histograms

- 110 vehicles.
- 90 vehicles.
- 65 vehicles and $\frac{65}{110}$ or $\frac{13}{22}$



- 55 houses.
- $\frac{15}{85}$ or $\frac{3}{17}$
- 60 houses.

Page 94 Stem and Leaf Plots

	Amount spent on takeaways (final)									
0	5	8								
1	1	1	2	4	8	8	9			
2	1	2	2	5	6	6	7	8	9	
3	1	1	3	5	5	6	8			
4	0	2	5	7						
5	0	4								

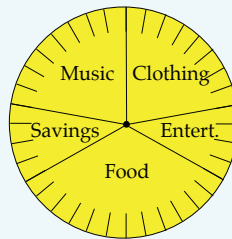
- 31
- Median = \$27
- Range = \$49
- $\frac{3}{31}$

- 6
- No, Tuesday night would probably be a quiet night for takeaway sales. Jamie needs to choose more than one night of the week as well as other takeaway shops.

Page 95 Pie Graphs

- Clothing 80°
Entertainment 40°
Food 120°
Savings 40°
Music 80°

Jane's spending

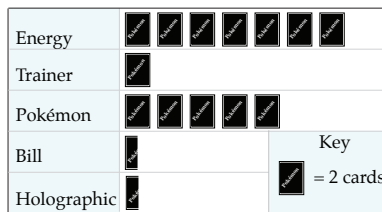


- $\frac{12}{36}$ or $\frac{1}{3}$
- 60 students.
- 10 students.
- $\frac{13}{36}$
- 45 students.

Page 96 Pictographs

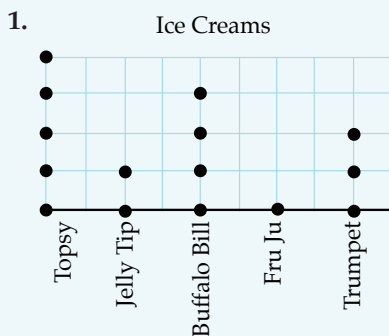
- 280 students.
- 50 students.
- 130 students.
- $\frac{80}{280}$ or $\frac{2}{7}$

Pokémon cards



- 28 cards.
- $\frac{14}{28}$ or $\frac{1}{2}$
- $\frac{12}{28}$ or $\frac{3}{7}$
- 90 cents.

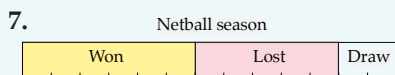
Page 97 Dot Plots and Strip Graphs



- 15 players
- $\frac{5}{15}$ or $\frac{1}{3}$

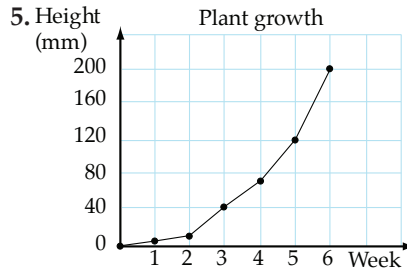


- 13 games
- $\frac{6}{13}$



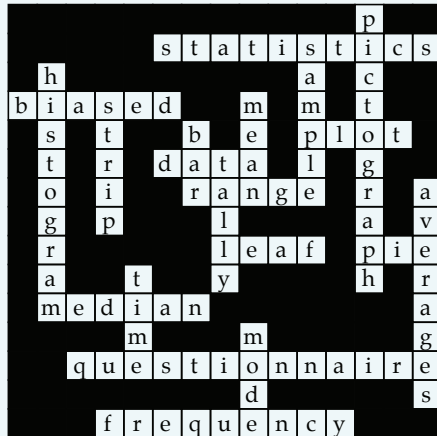
Page 98 Time Series Graphs

1. 60°C
2. 100° C
3. 4 minutes.
4. 80° C



6. 70 mm
7. 50 mm
8. 160 mm
9. 6th week, 80 mm.

Page 99 Statistics Crossword



Page 100 Statistics Review

1. 40 mm
20 mm
50 mm
35 mm
25 mm
65 mm
45 mm
a) 20, 25, 35, 40, 45, 50, 65
b) mean = 40 mm
median = 40 mm
range = 45 mm

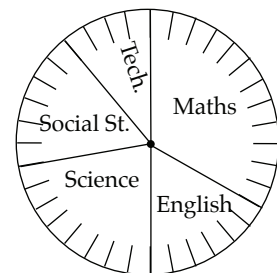
2.

Fast food sold/hour	Tally	Frequency
chicken		5
burger		7
fish		11
chips		15
hotdog		4
fritter		2
TOTAL	44	44

- b) chips
- c) $\frac{4}{44}$ or $\frac{1}{11}$

3. a) 38 000 books
b) 1 000 books
c) $\frac{29000}{38000}$ or $\frac{29}{38}$

4. Matt's revising



Probability

Page 102 Probability Concepts

- 1, 2, 3, 4, 5, 6
sample size = 6
- a) Pin up or pin down.
b) No
- a) body, leg, eye, head,
antennae (feeler)
b) 6
c) $6 + 2 + 2 + 1 + 1 = 12$

Problem Solving

63

Page 103 Relative Frequency

- a) $\frac{8}{20} = 0.4$
b) $\frac{9}{20} = 0.45$
c) Can't tell.
- a) Point up = 23
b) Thrown = 40
c) Relative freq. = $\frac{23}{40} = 0.575$
d) Expect 575

Problem Solving

Joey is now 10 and Mark is 5.

Page 104 Predicting Probability

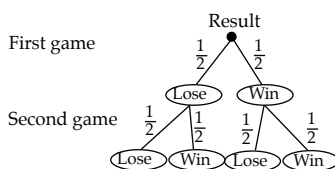
- | | | |
|----------------|----------------|--|
| A 0.5 | L 0.2 | S 0.375 |
| D 0.167 | M 0.833 | T 0.1 |
| E 0.4 | N 0.3 | W 0.625 |
| H 0.25 | O 0.125 | Y 0.9 |
| I 0.008 | R 0.333 | SAY HELLO AND SIT
SOMEWHERE ELSE. |

Page 105 Probability Trees

- Prob. (H + T in any order) is
 $P(H \text{ and } T) = \frac{1}{4} + \frac{1}{4} = \frac{1}{2}$
- $P(2 \times \text{ace of clubs}) = \frac{1}{4} \times \frac{1}{4} = \frac{1}{16}$
- $P(2 \times \text{black}) = \frac{1}{5} \times \frac{1}{5} = \frac{1}{25}$
- a) $P(2 \times \text{on time}) = 0.9 \times 0.9 = 0.81$
b) $P(\text{late 1 or 2}) = 1 - 0.81 = 0.19$

Page 106 Probability Review

- a) Sheep, rooster (chicken),
cow, horse and pig.
b) $P(\text{horse}) = 0.2$
c) 20
- b) $P(2 \text{ wins}) = \frac{1}{2} \times \frac{1}{2} = \frac{1}{4}$
c) $P(\text{win} + \text{lose}) = \frac{1}{4} + \frac{1}{4} = \frac{1}{2}$
d) Probability stays at $\frac{1}{2}$
- a) $P(\text{cat}) = \frac{5}{15} \left(\frac{1}{3}\right)$
b) $P(\text{cat or horse}) = \frac{9}{15} \left(\frac{3}{5}\right)$
- c) $P(\text{no cat}) = \frac{10}{15} \left(\frac{2}{3}\right)$
d) $P(\text{bird}) = 0$
- a) Pin thrown = 200
b) Relative freq. = $0.6 \left(\frac{120}{200}\right)$



Arithmetic

Page 107 Whole Number – Addition and Subtraction

A 894	H 413	O 680	T 192
C 872	I 458	R 256	U 246
E 713	M 445	S 127	W 467
F 766	N 527	When is it good manners to spit in a man's face?	

WHEN HIS MOUSTACHE CATCHES ON FIRE.

Page 108 Whole Number – Multiplication

A 710	I 1530	S 1075	T 1037
D 1897	L 1271	What happened to the man who walked into a screen door?	
E 972	M 1032	HE STRAINED HIMSELF.	
F 3000	N 832		
H 828	R 1110		

Page 109 Whole Number – Division

A 28	L 143	S 92	U 456
E 16	N 89	T 69	W 345
H 48	Q 204	What is big, likes peanuts, and has a trunk?	
I 429	R 147	A TREE WITH A SQUIRREL IN IT.	

Page 110 Whole Number – Applications

A 899	L 600	S \$250	U 1960
B 18	N 78	T 3600	X 55
E 46	O \$572	What happened to the man who tried to blow up his car?	
H \$408	P 24	HE BURNT HIS LIPS ON THE EXHAUST PIPE.	
I \$27	R 8760		

Page 111 Decimals – Addition and Subtraction

A 8.31	H 0.151	R 0.143	T 0.617
D 2.794	I 9.167	S 1.565	U 0.772
E 1.314	N 0.633	Why did the fortune teller quit her job?	
F 6.85	O 1.779	SHE DID NOT SEE A FUTURE IN IT.	

Page 112 Decimals – Multiplication by a Whole Number

D 3.69	I 3.00	R 108.0	T 58.38
E 42.30	L 20.19	S 6.75	W 58.59
G 0.657	N 7.44	What is a fishing net?	
H 24.65	O 56.3	HOLES TIED TOGETHER WITH STRING.	

Page 113 Decimals – Multiplication by a Decimal

C 8.25	I 4.95	S 0.56	W 5.00
D 5.04	L 7.80	T \$8.08	
E 4.56	N 5.46	Teacher: When do you like school most?	
H 6.25	O \$46.80	PUPIL: WHEN IT'S CLOSED.	

Page 114 Decimals – Division by a Whole Number

E 12.9

S 3.75

H 17.1

T \$2.80

L 4.8

W \$3.45

O 0.85

What happened when the dog went to the flea circus?

HE STOLE THE SHOW.**Page 115 Decimals – Division by a Decimal**

C 4.3

O 10.4

H 15.2

P 0.14

I 54.7

T 417

K 2.17

Americans' choke on this more than any other item?

TOOTHPICK.**Page 116 Decimals – Applications**

C \$4.75

L 7.5 hours

T \$11.25

Y \$33.75

E \$16.80

N 6.2 cm

U \$11.11

G 0.091 mm

O 0.25 (25 cents)

How do you know there is an elephant hiding under your bed?

H 88.75 m

R \$1.75

YOUR NOSE TOUCHES THE CEILING.

I 301.1 kg

S 0.275 m