

Letts

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I see maths

Delivers the Framework for Teaching Mathematics



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Year 7

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Key Stage 2 Review

Addition and Subtraction

Exercise Bank

1

	400	325	111	323	555	400	333	213	42	47
+ 555	955	880	666	878	1110	955	888	768	597	602

- 2 (a) 141 (b) 36 (c) 1462 (d) 1287 (e) 614
 (f) 8839 (g) 1460 (h) 1035

- 3 (a) 109 (b) 165 (c) The number you started with. (d) 1000

4

x	60	70	82	24	65	47
y	40	30	18	76	35	53
$x + y$	100	100	100	100	100	100

5

x	12.6	8.4	1.7	10.7	27.92	25.76
y	5.3	15.2	1.9	23.2	18.45	37.33
$x + y$	17.9	23.6	3.6	33.9	46.37	63.09

6

x	16.6	42.8	67.9	37.3	90.2	60.04
y	6.6	3.7	33.4	24.7	72.7	35.03
$x - y$	10.0	39.1	34.5	12.6	17.5	25.01

- 7 (a) $x = 32$ (b) $x = 63$ (c) $x = 312$ (d) $x = 101$ (e) $x = 87$
 (f) $x = 487$

8

318				
149		169		
74	75	94		
38	36	39	55	
23	15	21	18	37

9

6	3	3
1	4	7
5	5	2

14	14	17
18	15	12
13	16	16

106	105	110
111	107	103
104	109	108

10 Yes, Toby got the calculator with £11.70 left.

11 They had a further 151 miles to go.

Key Stage 2 Review

Homework

- (a) Mrs Soames keeps chickens and sells their eggs. Last week she collected three dozen eggs (36) on Monday and two dozen eggs (24) on Tuesday. She then sold 15 eggs all at once, a dozen to Mr Brand and three to Miss Williams who only wanted enough to bake a cake. On Wednesday she had 45 eggs left to take to the local market.
- (b) Jane, Kate and Emily were collecting money for their favourite charity, The Friendly Donkey Society. When they emptied their collecting boxes they each piled their coins into heaps of 1p, 2p, 5p, and so on. Starting with the three piles of pennies, they had to count each pile and then add them up. Jane had 147 pennies in her pile. Kate had 256 pennies in her pile. Emily had 194 pennies in her pile. The total number of pennies in the collecting boxes was 597.
- (c) Mr Bodgitt isn't very good at DIY but he likes to try. He has two bits of wood left over from a previous project, and wants to know if fixing them together will give him a long enough piece to nail on his back door and keep the draughts out. The first piece of wood measures 36.4 cm and the other 28.2 cm. So altogether he has 64.6 cm of wood. Just about enough.

Extending the Multiplication Tables

Exercise Bank

1

$\times 5$	4	6	9	5	8	10	4	7	11	20	$\div 5$
	20	30	45	25	40	50	20	35	55	100	

- 2 (a) 72 (b) 720 (c) 7200 (d) 7 200 000 (e) 720 000
 (f) 9 (g) 8 (h) 80

- 3 (a) 420 (b) 4200 (c) 42 000 (d) 42 000 (e) 42 000 000
 (f) 420 000 000 (g) 4.2 (h) 4.2 (i) 42 (j) $\frac{42}{10}$
 (k) 7 (l) 6 (m) 70 (n) 600 (o) 700

- 4 (a) 24 (b) 100 (c) 3200 (d) 0 (e) 8
 (f) 16 (g) 12 (h) 8 (i) 225

5

x	9	8	7	900	400	2000
y	4	7	11	5	30	8
$x \times y$	36	56	77	4500	12 000	16 000

x	63	490	6480	18 000	350	1600
y	7	7	720	60	7	$11\frac{3}{7}$
$x \div y$	9	70	9	300	50	140

* The student book contains a misprint in the above question. The final part should read $x = 1600, y = 16$, giving an answer of 100. The grid above gives the correct answer to the printed version.

- 6 (a) $x = 9$ (b) $x = 8$ (c) $x = 100$
- 7 (a) 520 (b) 39 000 (c) 3250 (d) 58.5 (e) 8
 (f) 65 (g) 30 (h) 65 (i) 6.5 (j) 1
 (k) 715 (l) 975 (m) 1365 (n) 17 (o) 15
 (p) 3900
- 8 (a) $6 \times 8 = 48 \text{ cm}^2$ (b) $\frac{1}{2}(10 \times 7) = 35 \text{ cm}^2$ (c) $2\left(\frac{63}{9}\right) = 14 \text{ cm}$ (d) $5 \times 8 \times 9 = 360 \text{ cm}^3$
 (e) $\frac{420}{10} = 42 \text{ cm}^2$
- 9 $7 \times 80\text{p} = \text{£}5.60$
- 10 $7 \times 3000 = 21\,000 \text{ m}$
- 11 $\frac{12}{3} = 4 \text{ miles per hour}$

Homework

- (a) Class 7A were trying to count the number of slabs in the paved area outside their classroom. The area was a rectangle, with 50 slabs along the shortest side and 70 slabs along the longest side. They worked out that there were 3500 slabs in all.
- (b) Mr and Mrs Jones had just bought some new units for their kitchen. It was an impulse buy, and they weren't sure how they would fit into the room. They had four 6000 mm units that Mrs Jones wanted to go under the window. They worked out that they needed a total length of 24 000 mm along this wall.
- (c) The Carrington-Smythes were moving to Hong Kong and had to fit all their belongings into one large container that would be shipped out to their new home. They had estimated the volume of their larger items of antique furniture, and wondered whether these alone would fill the container. The furniture was going to take up about 350 cubic metres, and the shipping container measured 6 m \times 8 m \times 9 m. Mrs C-S worked out that as the volume of the container was 432 cubic metres, she had room to fit in quite a few cases of clothes too.
- (d) Five friends eat a pack of ten chocolate bars between them every day for a week. One of their mothers thinks they eat too many, and tells them they are averaging 14 bars each per week. They think this sounds too many, but is she right?
- (e) Leslie and Fred want to send a piece of cake to all the 30 guests at their wedding. They cut the cake in half, then in half again, then again ... a total of six times. Then they stop to see if they have enough pieces yet. Fred says he knows how many pieces there will be without counting, it will be 32. Leslie doesn't believe him, so she counts them all out and finds he is right. They can celebrate by eating a piece each.
- (f) Poor Dim Tim scored zero in each of his eight end of year tests. He was very disappointed, and wanted to calculate his total score in case it sounded better. But his teacher told him that eight times zero is still zero!

Addition and Subtraction of Fractions

Exercise Bank

- 1 (a) $\frac{3}{5}$ (b) $\frac{10}{5}$ (c) $\frac{5}{5}$ (d) $\frac{48}{5}$ (e) $\frac{377}{5}$
 (f) $\frac{242}{5}$ (g) $\frac{2}{7}$ (h) $\frac{65}{25}$

Key Stage 2 Review

- 2 (a) $\frac{14}{5}$ (b) $\frac{43}{5}$ (c) $\frac{3}{5}$ (d) $\frac{22}{5}$ (e) $\frac{138}{9}$
 (f) $\frac{42}{37}$
- 3 (a) $\frac{2}{10}$ (b) $\frac{15}{10}$ (c) $\frac{104}{100}$ (d) $\frac{11}{5}$ (e) $5\frac{1}{5}$
 (f) $18\frac{1}{4}$

4

x	$\frac{4}{8}$	$\frac{15}{23}$	$\frac{60}{101}$	$\frac{72}{83}$	$\frac{36}{16}$	$2\frac{35}{150}$
y	$\frac{7}{8}$	$\frac{38}{23}$	$\frac{65}{101}$	$\frac{72}{83}$	$\frac{23}{16}$	$3\frac{105}{150}$
$x + y$	$\frac{11}{8}$	$\frac{53}{23}$	$\frac{125}{101}$	$\frac{144}{83}$	$\frac{59}{16}$	$5\frac{140}{150}$

x	$\frac{4}{3}$	$\frac{3}{4}$	5	$1\frac{3}{5}$	$5\frac{2}{10}$	$\frac{67}{40}$
y	$\frac{5}{3}$	$\frac{9}{4}$	$\frac{14}{7}$	$2\frac{1}{5}$	$4\frac{8}{10}$	$\frac{71}{40}$
z	$\frac{7}{3}$	$\frac{6}{4}$	$\frac{21}{7}$	$3\frac{2}{5}$	$3\frac{4}{10}$	$\frac{72}{40}$
$x + y + z$	$\frac{16}{3}$	$\frac{18}{4}$	10	$7\frac{1}{5}$	$13\frac{4}{10}$	$\frac{210}{40}$

- 5 (a) True (b) True (c) True
- 6 (a) False (b) True
- 7 (a) $x = 1$ (b) $x = \frac{18}{11}$ (c) $x = 1$
- 8 $\frac{1}{2}, \frac{1}{2}, \frac{3}{8}, \frac{5}{8}$
- 9 Twelve and a quarter litres.
- 10 One-tenth of a litre is left, or 100 millilitres.
- 11 Nine-tenths of the drink, or 90%.

Homework

$\frac{177}{15}$				
$\frac{96}{15}$		$\frac{81}{15}$		
$\frac{49}{15}$	$\frac{47}{15}$	$\frac{34}{15}$		
$\frac{20}{15}$	$\frac{29}{15}$	$\frac{18}{15}$	$\frac{16}{15}$	
$\frac{6}{15}$	$\frac{14}{15}$	1	$\frac{3}{15}$	$\frac{13}{15}$

The Distributive Law

Exercise Bank

- 1 (a) 1480 (b) 1680 (c) 4250 (d) 1920 (e) 64 400
 (f) 340 000 (g) 37 600 (h) 1160 (i) 29 400

- 2 (a) 1488 (b) 24 745 (c) 375 (d) 7348 (e) 8075
 (f) 2808 (g) 4356 (h) 531 468 (i) 15 141 (j) 4686
 (k) 63 100 (l) 6980

- 3 (a) 1755 (b) 1554 (c) 2688 (d) 2496 (e) 2028
 (f) 1225 (g) 9648 (h) 6496 (i) 23 876

- 4 (a) 25 700 (b) 240 (c) 170 (d) 9750 (e) 950
 (f) 375 (g) 647 (h) 140 (i) 82.7 (j) 3008

5

a	b	c	ac	bc	$(a + b)c$	$ac + ab$
40	30	53	2120	1590	3710	3710
7	8	5	35	40	75	75
12	15	3	36	45	81	81
20	30	3	60	90	150	150
18	16	4	72	64	136	136

6 $\frac{1609 \times (161 + 64 + 146)}{1000} = 596.9 \text{ km}$

7 $29 \times 34 = 986 \text{ cm}^2$

8 $\frac{1}{2}(36 \times 27) = 486 \text{ cm}^2$

Homework

- (a) Kevin earned £56 a month from his paper round, and had one month off in the summer when he went on a long camping holiday in France with his family. He earned a total of $£56 \times 11 = £616$ during the course of the year, so was able to treat his two brothers and his sister to lots of ice creams.
- (b) Mr and Mrs Grey had just moved into a lovely new house with a big garden. The estate agent's details said it had an area of over 2000 square feet. They measured it at 23 feet by 99 feet, to give a more accurate area of 2277 square feet.
- (c) Mr Green planted a vegetable bed full of leeks. It took him a whole day to place all the plants out. He put in 54 rows, with 45 leeks in each row. A total of 2430 plants. No wonder he was tired at the end of the day.
- (d) Miss Viner was trying to decide on a coffee table to buy in her favourite department store. She measured the width and length of the table she liked most, and calculated that it had an area of 608 mm by 304 mm, or 184 832 mm².
- (e) Mr Roberts was making a rabbit hutch for his daughter's pet bunny, Flossy. He decided to make it 37 cm high by 42 cm wide by 56 cm long. The rabbit had a cosy new home, and they worked out that the volume of its living space was 87 024 cm³. Much bigger than the previous hutch.
- (f) Clive is celebrating his 28th birthday today. He works out that he was born $365 \times 28 = 10\,220$ days ago, and that makes him feel an awful lot older!

Comprehension 1

Exercise Bank

- 1 (a) Five children, four adults. (b) £1200 per person.
 (c) £10 800 (d) £7560 (e) £3240 (f) £7200 (g) £360
- 2 —
- 3 (a) 245 in Y7, 240 in Y8, 242 in Y9, 239 in Y10, 239 in Y11. (b) 1205 (c) —
 (d) Between £5 and £10 for all year groups. (e) $\frac{140}{245}$ (f) 57.14%
 (g) 2.09%
- 4 —

Multiplication and Division

Exercise Bank

- 1 (a) 9 and 7 (b) 7 and 8 (c) 11 and 17 (d) 83 and 67
- 2 (a) 115 rem. 2 (b) 77 (c) 66 (d) 57 rem. 6 (e) 51 rem. 3
 (f) 293 (g) 175 rem. 4 (h) 219 rem. 3 (i) 125 rem. 4 (j) 109 rem. 7
- 3 (a) 185 (b) 308 rem. 1 (c) 242 (d) 103 rem. 5 (e) 82
 (f) 164 (g) 93 rem. 5 (h) 180 rem. 1 (i) 147 (j) 187 rem. 2
 (k) 316 (l) 347 rem. 6 (m) 601 rem. 4 (n) 678 rem. 2 (o) 181
- 4 (a) 324 (b) 512 (c) 174 rem. 2 (d) 616 rem. 5 (e) 225 rem. 6
 (f) 331 rem. 11
- 5 (a) $36 = 2 \times 2 \times 3 \times 3$ (b) $48 = 2 \times 2 \times 2 \times 2 \times 3$ (c) 53
 (d) $87 = 3 \times 29$ (e) $64 = 2 \times 2 \times 2 \times 2 \times 2 \times 2$ (f) $91 = 7 \times 13$
 (g) $100 = 2 \times 2 \times 5 \times 5$
- 6 (a) 11 610 (b) 1 161 000 (c) 116.1 (d) 11.61 (e) 11 610 000
 (f) 43 (g) 27 (h) 4300 (i) 270 (j) 43
 (k) 11.61 (l) 1.161
- 7
- | | | | | | | | |
|------------|----|-----|-----|-----|-----|-----|-----|
| x | 63 | 490 | 800 | 270 | 252 | 198 | 760 |
| y | 7 | 7 | 16 | 18 | 12 | 11 | 19 |
| $x \div y$ | 9 | 70 | 50 | 15 | 21 | 18 | 40 |
- 8 (a) $\frac{1248}{8} = 156$ cm (b) $\frac{374}{6} = 62\frac{1}{3}$ kg
- 9 (a) $\frac{414}{9} = 46$ cm (b) $2\left(\frac{91}{7}\right) = 26$ cm

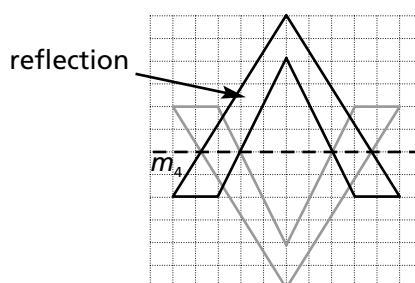
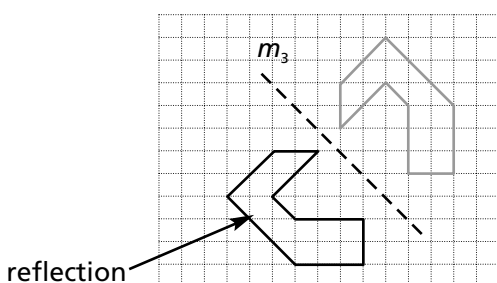
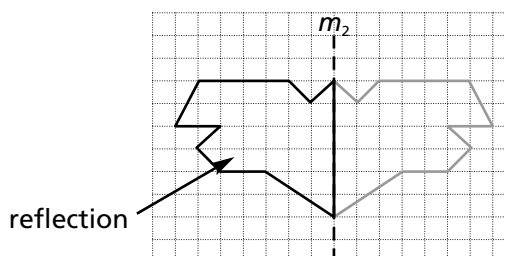
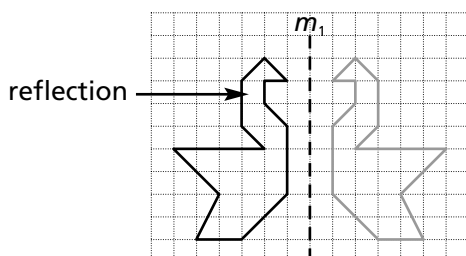
Homework

- (a) Mr Broadbent harvested 435 apples from his orchard. He carefully sorted them into three equal piles of 145 apples each. One pile for his mother, one for his sister and one for his wife. They all liked to make apple pies, and wanted a good supply for the winter.
- (b) Five friends bought the most enormous tin of chocolates they could find for Christmas. They wanted to be sure they all got an equal share, so divided the chocolates into five smaller tins, containing 69 each.
- (c) Poor Miss Bryce can only afford to go on holiday once every two years. She went to Spain just over eight months ago, and is counting the weeks until her next holiday. She writes down all the days between now and the next trip she has booked, to Italy. There are 595 days to go, which dividing by seven means only 85 weeks.
- (d) The Woodley Green quiz team take part in one quiz a month from October to May. Their aggregate score last year was 1968, giving an average of 246 points per quiz over the eight-month season. They are quite pleased with this, as their average score the previous year was only 220 points.
- (e) Elderly Mr Clements and his even more elderly sister live a few miles apart in Chesterfield. Mr Clements visits his sister once a month without fail. It was such a habit that he never thought about how many years he had been visiting. But she kept a note of his visits in her diary, and could say that he had been 648 times altogether. Mr Clements was amazed to work this out, dividing by 12, as 54 years of regular trips.

Symmetry and Area

Exercise Bank

1



* The student book contains a misprint in the above question. The third part should show mirror line m_3 at 45° , to give the answer shown here.

- 2 (a) $10 \text{ cm} \times 3 \text{ cm} + 3 \text{ cm} \times 3 \text{ cm} = 39 \text{ cm}^2$ (b) $15 \text{ cm} \times 6 \text{ cm} + 9 \text{ cm} \times 8 \text{ cm} = 162 \text{ cm}^2$
- 3 (a) $12 \text{ m} \times 10 \text{ m} - 2 \text{ m} \times 2 \text{ m} - 2 \text{ m} \times 4 \text{ m} = 108 \text{ m}^2$ (b) $16 \text{ m} \times 10 \text{ m} - 12 \text{ m} \times 8 \text{ m} = 64 \text{ m}^2$

Key Stage 2 Review

Shape	Area in m ²
square ABJI	4
triangle FAI	2
triangle BCJ	2
rectangle IJDE	12
triangle FIE	6
triangle JCD	6
Total	32

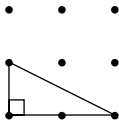
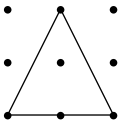
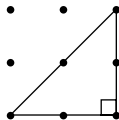
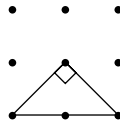
- 5 (a) $2x = 60 \text{ m} - 3 \times 10 \text{ m} = 30 \text{ m}$ (b) $2y = 50 \text{ m} - 3 \times 10 \text{ m} = 20 \text{ m}$
 $x = 15 \text{ m}$ $y = 10 \text{ m}$
 (c) Length of one lawn edge = $2 \times 15 \text{ m} + 2 \times 10 \text{ m} = 50 \text{ m}$
 Total length of lawn edge = $4 \times 50 \text{ m} = 200 \text{ m}$
 (d) $60 \text{ m} \times 50 \text{ m} - 4(15 \text{ m} \times 10 \text{ m}) = 2400 \text{ m}^2$
- 6 There are two possible answers here, depending on which three sides of the garden are chosen:
 $9 + 9 + 6 = 24 \text{ m}^2$ or $9 + 6 + 6 = 21 \text{ m}^2$.
- 7 * The student book contains a misprint in this question. The height of the walls is 2.5 m. The answer is therefore:
 $2(5 \times 3) + 2(5 \times 2.5) + 2(3 \times 2.5) = 50 \text{ m}^2$ for one coat of paint, so 100 m^2 for two coats.

Homework

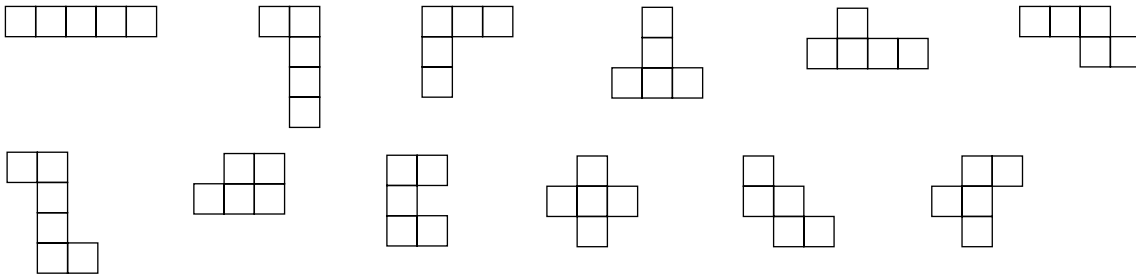
The vertices A, B and C are reflected perpendicular to the mirror line m to give new vertices A', B' and C' all an equal distance away from m as the original vertices.

Angles, Lines and Triangles

Exercise Bank

- 1 (a) 360 (b) 180 (c) 360 (d) 180 (e) 180
- 2 (a) $a^\circ = 130^\circ$ (b) $b^\circ = 60^\circ$ (c) $f^\circ = 100^\circ$ (d) $c^\circ = 108^\circ, d^\circ = 72^\circ, e^\circ = 108^\circ$
 (e) $g^\circ = 104^\circ, h^\circ = 46^\circ, i^\circ = 30^\circ$
- 3 (a) Parallel (b) Not parallel (c) Parallel (d) Not parallel
- 4 (a) $\hat{A}DE$ and $\hat{A}DF$ (b) $\hat{F}AD$ and $\hat{D}AE$ (c) $\hat{A}CH$ and $\hat{A}CB$ (d) $\hat{A}ED$ and $\hat{A}CH$ (e) $\hat{A}CB$ and $\hat{E}CH$
 (f) $\hat{F}DI$ and $\hat{D}FB$
- 6 (a)    
- (b) Scalene Isosceles Isosceles Isosceles
 (c) Right-angled Acute-angled Right-angled Right-angled
 (d) Area 1 Area 2 Area 2 Area 1

Homework



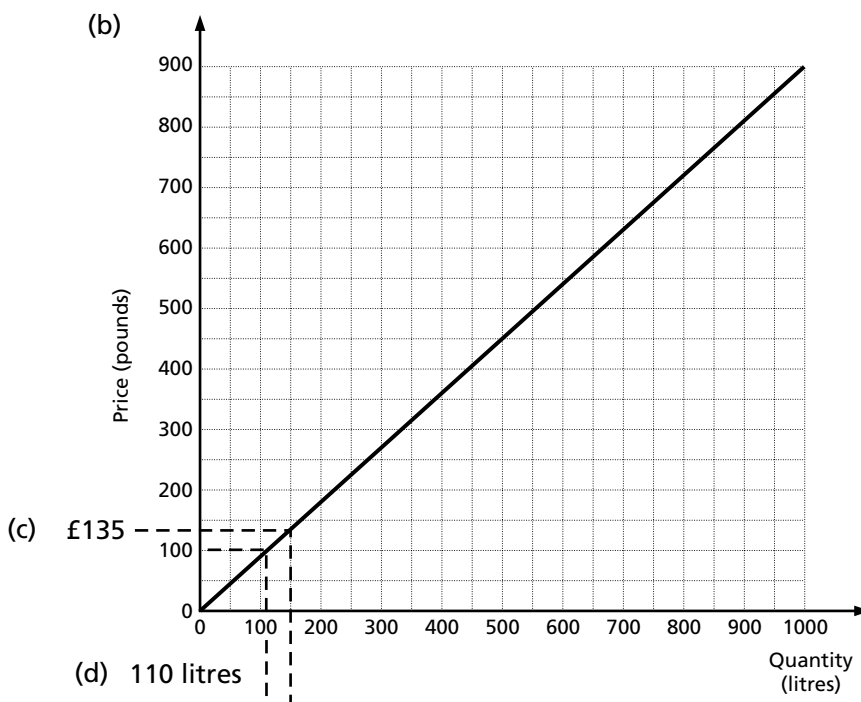
Reading Scales and Graphs

Exercise Bank

- 1 (a) 8.5 cm (b) 0.085 m (c) 85 mm (d) $3\frac{3}{8}$ inches
- 2 (a) 115 g (b) $\frac{1}{4}$ lb (c) 0.12 kg (d) 4 oz
- 3 (a) 350 ml (b) 0.35 l (c) 275 ml (d) 0.275 l
- 4 (a) Three miles. (b) 30 minutes. (c) $2\frac{1}{4}$ hours. No. (d) 3 : 30 p.m. One hour.
 (e) 5 : 30 p.m. (f) Faster towards Woodbury. (g) Seven miles per hour.

5 (a)

Quantity in litres	1	10	50	100	200	500	1000
Price in pence	90	900	4500	9000	18 000	45 000	90 000



Comprehension 2

Exercise Bank

- 1 (a) 1850 (b) 79 (c) Less. (d) 3·1 miles per hour.
(e) 23 hours. (f) 38 minutes faster. (g) 5 miles per hour.
- 2 (a) 1347 m (b) Ben Nevis (c) Sca Fell (978 m)
- 3 (a) 3800 km (b) 1·5 km (c) 4000 km (d) Sixteenth century.
(e) 450 m (f) 110 m (g) 180 m

Homework

Mount Everest. Height 8848 m, 29021 ft.