Workbook Answer Key

Unit 1

Exercise 1 (p. 7–9)

1. (a) 453 (b) 23,405
2. (a) $32,400
   (b) Thirty-two thousand, four hundred dollars
3. (a) 8402 (b) 12,793 (c) 90,511
   (d) 88,008 (e) 99,999
4. (a) two thousand eighty
   (b) nine thousand two hundred fifteen
   (c) forty-seven thousand, ten
   (d) eighty-nine thousand, one hundred two
   (e) forty thousand, nine hundred
   (f) seventy-eight thousand, nine hundred ninety-nine
5. (a) 24,608 (b) 16,011
   (c) 99,009 (d) 312,460
   (e) 802,003 (f) 540,014
   (g) 900,909
6. (a) fifty thousand, two hundred thirty-four
   (b) twenty-six thousand, eight
   (c) seventy-three thousand, five hundred six
   (d) three hundred sixty-seven thousand, four hundred fifty
   (e) five hundred six thousand, nine
   (f) four hundred thirty thousand, sixteen
   (g) eight hundred thousand, five hundred fifty
7. 900,000 + 50,000 + 7000 + 5

Exercise 2 (p. 10–12)

1. (a) 2 / 20,000
   3 / 3000
   5 / 500
   2 / 20
   9 / 9
   (b) 4 / 40,000
   0 / 0
   6 / 600
   1 / 10
   8 / 8
   (c) 4 / 40,000
   5 / 5000
   0 / 0
   2 / 20
   3 / 3
   (d) 8 / 80,000
   8 / 8000
   8 / 800
   8 / 80
   8 / 8
2. (a) 70,000
   (b) 2, 200
   (c) 4, 8
3. (a) 4000
   (b) 4
   (c) 500
4. (a) 3
   (b) 6000
   (c) 40,000
   (d) 2000
   (e) 100
5. (a) 4307
   (b) 56,400
   (c) 30,768
   (d) 11,400
   (e) 90,090
6. (a) 7000
   (b) 6, 60,000
   (c) hundreds
   (d) 40
7. (a) 42,108
   (b) 562,032
   (c) 770,077
   (d) 900,214
8. (a) 800
   (b) 300,000
   (c) 3000
   (d) 8

Exercise 3 (p. 13–14)

1. (a) 3,000,000 (b) 4,150,000
   (c) 6,031,000 (d) 7,208,000
   (e) 5,005,000 (f) 95,909,000
   (g) 710,000,000
2. (a) four million
   (b) six million, three hundred fifty thousand
   (c) three hundred eight million, five hundred sixty-seven thousand

(d) seventeen million, seven hundred three thousand
(e) three million, forty thousand
(f) five million, six thousand
(g) one hundred forty nine million, ninety nine thousand

3. 2,003,705, two million, three thousand, seven hundred five
4. $2,400,000, two million, four hundred thousand

Exercise 4 (p. 15–16)

1. (a) 43,628
   (b) 253,240
   (c) 89,900
   (d) 86,100,000
   (e) 100
   (f) 10,000
   (g) 1000
   (h) 1000
2. (a) 526
   (b) 30,000
3. (a) 36,552, 37,552
   (b) 71,880, 72,080
   (c) 303,610, 313,610
4. (a) 31,862
   (b) 42,650
   (c) 33,856
   (d) 65,703
5. (a) 3695, 3956, 30,965, 35,096
   (b) 296,870, 435,760, 462,540, 503,140

Exercise 5 (p. 17–18)

1. (a) 16,000 (b) 37,000
   (c) 24,000
2. (a) 9000 (b) 34,000
   (c) 24,000
3. (a) 6000 (b) 48,000
   (c) 63,000
4. (a) 2000 (b) 12,000
   (c) 3000
5. (a) 12,000 (b) 46,000
   (c) 21,000 (d) 40,000
   (e) 3 (f) 8000
   (g) 5 (h) 56,000

Exercise 6 (p. 19–20)

1. (a) 300 (b) 1320
2. (a) 6000 (b) 36,300
3. (a) 46,000 (b) 236,000
4. (a) 245,000 (b) 248,000
5. (a) 43,190 (b) 14,600
   (c) 83,000 (d) 2,000,000
   (e) 20,000,000
6. (a) $440,000 (b) $530,000
   (c) $2,610,000 (d) $3,970,000
   (e) $5,990,000 (f) $6,230,000
7. (a) $3,100,000 (b) $5,700,000
   (c) $18,300,000 (d) $25,000,000
   (e) $43,800,000 (f) $48,900,000
   (g) $328,500,000
   (h) $693,500,000

Exercise 7 (p. 21–22)

1. 1; 2; 4; 5; 10; 20
2. (a) 2, 6 (b) 1, 8 (c) 3, 7
3. (a) 4 (b) 3 (c) 9 (d) 8
   (e) 8 (f) 8 (g) 9 (h) 9
   (i) 10 (j) 8
4. (a) 8, 4; 1, 2, 4, 8
   (b) 15, 5; 1, 3, 5, 15
5. 13, 19

Exercise 8 (p. 23–25)

1. (a) No. 17 R1
   (b) Yes. 15
2. Yes, Yes, No
   Yes, Yes, No
   Yes, Yes, Yes
   Yes, No, Yes
   Yes, No, Yes
   Yes, Yes, No
3. (a) Yes (b) No (c) Yes
4. (a) 1, 2, 4, 8, 16, 32, 64
   (b) 1, 2, 3, 4, 6, 8, 9, 12, 18, 24, 36, 72
   (c) 1, 2, 3, 4, 6, 7, 12, 14, 21, 28, 42, 84
5. (a) 2, 2
   (b) 2, 7
   (c) 3, 3
   (d) 2, 3, 3
6. (a) 4 (b) 3
   (c) 5 (d) 10
   (e) 16 (f) 8

Exercise 9 (p. 26–27)

1. (a) 6, 12, 18, 24
   (b) 7, 14, 21, 28, 35
2. 6, 8, 10, 12, 14
   9, 12, 15, 18, 21
   12, 16, 20, 24, 28
   18, 24, 30, 36, 42

24, 32, 40, 48, 56
30, 40, 50, 60, 70

3. (a) 6, 12
(b) 8, 16
(c) 9, 18, 27, 36, 45, 54
6, 12, 18, 24, 30, 36
18, 36
(d) 8, 16, 24, 32, 40, 48
6, 12, 18, 24, 30, 36, 42, 48
24, 48

Exercise 10 (p. 28–29)

1. (a) 40 (b) 17 (c) 25 (d) 24
(e) 120 (f) 3 (g) 33 (h) 40
2. (a) 32 (b) 20 (c) 50 (d) 85
(e) 62 (f) 15 (g) 55 (h) 108
3. (a) 17 (b) −2 (c) 53 (d) 60
(e) 33 (f) 12 (g) 59 (h) 9

Exercise 11 (p. 30–31)

1. (a) 20 (b) 80 (c) 10 (d) 3
(e) 48 (f) 10 (g) 45 (h) 1
2. (a) 3 (b) 10 (c) 6 (d) 50
(e) 30 (f) 1 (g) 12 (h) 100
3. (a) 24 (b) 46 (c) 9 (d) 30
(e) 65 (f) 4 (g) 10 (h) 18

Exercise 12 (p. 32–33)

1. (a) 50 − 32 + 18 = 36
(b) 20 − 5 − 10 = 5
(c) (15 × 2) + 10 = 40
2. Check (a), (d), (e), (g)
3. (a) (2 + 4) ÷ 2 = 3
(b) 6 − (2 × 3) = 0
(c) (2 × 4) − 3 + 2 = 7
(d) 2 × (4 − 3) + 2 = 4
(e) 2 × 4 − (3 + 2) = 3

Exercise 13 (p. 34–35)

1. −154°C
2. (a) $14
(b) −$5
(c) −$12
3. (a) −1, −2, −3, −4, −5
(b) left
(c) above
4. (a) −2 (b) 2 (c) 1
(d) 0 (e) −3 (f) −2
5. −4, −2, 0, 6, 10

Exercise 14 (p. 36–37)

1. (a) > (b) < (c) < (d) <
(e) < (f) < (g) > (h) >
2. (a) −5 (b) −99 (c) −10 (d) −4
3. (a) −8, −5, 0, 4
(b) −15, −1, 1, 2
(c) −9, −7, 8, 10
(d) −100, −99, 99, 100
4. (a) 10, 4, −5, −14
(b) 1, 0, −2, −4
(c) 40, 20, −30, −50
(d) −5, −7, −9, −12
5. (a) −8 (b) −12 (c) −2
(d) −7 (e) −2 (f) −100

Review 1 (p. 38–39)

1. (a) 14,060
(b) 26,008
(c) 10,032,520
(d) 400,069
(e) 59,000,400
2. (a) five hundred thousand, six
500,000 + 6
(b) thirty-four million, four thousand, one hundred twenty
30,000,000 + 4,000,000 + 4000 + 100 + 20
(c) twelve thousand, twenty-five
10,000 + 2000 + 20 + 5
3. (a) 7, 700,000
(b) tens
(c) 4, 2
4. (a) 4
(b) 90
(c) 2
(d) 2
5. 454,001
6. No
7. 1, 2, 3, 6, 9, 18, 27, 54
8. 29
9. 20, 40
10. (a) 140, 260, 296, 435, 463, 503, 540, 870
(b) −22, −19, −17, −16, 18, 20, 21

Unit 2

Exercise 1 (p. 40–41)

1. (a) 7895 (b) 3009
(c) 8954 (d) 3054
(e) 11,044 (f) 12,054

(g) 14,054 (h) 14,300
(i) 18,492 (j) 16,854
(k) 10,015 (l) 9212

2. (a) 4444 (b) 7456
(c) 3889 (d) 126
(e) 8873 (f) 2373
(g) 354 (h) 109
(i) 7888 (j) 2668
(k) 983 (l) 1069

Exercise 2 (p. 42–43)

1. (a) 10; 30; 330; 6330
(b) 10; 60; 260; 3260
(c) 100; 600; 1100; 2600
(d) 100; 500; 2100; 5500
(e) 1000; 3000
(f) 1000; 6000
2. (a) 2461 (b) 2845 (c) 3553
3. (a) 4; 34; 244; 5224
(b) 1; 91; 991; 1991
(c) 28; 428; 928; 2028
(d) 1; 301; 2001; 2901
(e) 160; 1160
(f) 1; 2001
4. (a) 2502 (b) 3401 (c) 3503

Exercise 3 (p. 44–46)

1. (a) 3904 (b) 3640 (c) 4302
2. (a) 3024 (b) 3200 (c) 3273
3. (a) 1591; 1681; 2581
(b) 2764; 2854; 3754
4. (a) 2020 (b) 2602 (c) 3146
(d) 3801 (e) 4102
5. (a) 2600 (b) 2250 (c) 2470
(d) 2001 (e) 3002
6. (a) 2603; 2611; 2611
(b) 5276; 5316; 5316
(c) 2924; 2894; 2894
(d) 2261; 1761; 1761
7. (a) 4625 (b) 7426
8. (a) 2816 (b) 2997

Exercise 4 (p. 47–48)

1. (a) 900
(b) 300
(c) 800 + 200 = 1000
(d) 900 − 300 = 600
(e) 600 + 600 = 1200
(f) 900 − 300 = 600
(g) 1800 + 400 = 2200
(h) 2300 − 1000 = 1300

2. (a) 800
(b) 700 − 200 − 300 = 200
(c) 1000 − 200 + 100 = 900
(d) 500 + 300 − 300 = 500
(e) 2000 − 600 + 500 = 1900
(f) 2400 + 600 − 700 = 2300
(g) 1100 − 100 + 400 = 1400
(h) 3000 + 1000 + 400 = 4400

Exercise 5 (p. 49–50)

1. (4670 + 698) + 4670 = 10,038
2. (325 + 49) + 325 = 699
3. \$3225 − (\$1950 + \$625) = \$650
4. (2365 + 375) + 2365 = 5105
5105 − 4250 = 855
He saved \$855.

Exercise 6 (p. 51)

1. (a) 8000; 7572
(b) 4000; 28,000; 28,252
(c) 6000; 48,000; 47,896
(d) 8000; 72,000; 73,755

Exercise 7 (p. 52–53)

1. (a) 500; 495
(b) 3600; 600; 599
(c) 4200; 600; 602
(d) 6300; 700; 720
2. (Left to right)
12,096; 11,850; 28,872; 43,488
1302; 3069; 242; 252

Exercise 8 (p. 54–55)

1. 1 unit → 1875
4 units → 1875 × 4 = 7500
The total number of beads is 7500.
2. 4 units → 4864
1 unit → 4864 ÷ 4 = 1216
3 units → 1216 × 3 = 3648
He made 3648 more meat buns.
3. (2 × \$3569) + \$2907 = \$10,045
He had \$10,045 at first.
4. (2 × \$4356) + (3 × \$3807)
= \$20,133
The sum is \$20,133.

Exercise 9 (p. 56)

1. 80 km; \$340; 5860 buns
2. (Left to right)
260; 380; 5820; 7490

204; 2040; 200; 2000
1744; 17,440; 5360; 53,600

Exercise 10 (p. 57)

1. (a) 324 (b) 5742
   (c) 6831 (d) 8613
2. (a) 3400 (b) 800
   (c) 2100 (d) 1400

Exercise 11 (p. 58–60)

1.(a) 120 120
1200 1200
1200 1200
12,000 12,000
12,000 12,000
(b) 30
300 300
3000 3000
3000 3000
30,000 30,000
30,000 30,000
2. (a) 2000; 2028
   (b) 80; 30; 2400; 2574
   (c) 30, 90, 2700, 2523
   (d) 90; 70; 6300; 6532
3. (a) 8000; 8066
   (b) 500; 60; 30,000; 28,497
   (c) 400; 60; 24,000; 23,808
   (d) 600; 80; 48,000; 50,544

Exercise 12 (p. 61–62)

1. (Across)
   B. 273
   D. 663
   F. 888
   G. 6560
   (Down)
   A. 868
   B. 2385
   C. 3540
   E. 686
2. (Across)
   A. 2714
   C. 7719
   D. 5922
   F. 2839
   H. 1518
   J. 6225
   (Down)
   A. 27,745
   B. 41,912
   E. 9688
   F. 21,518
   G. 3451
   I. 8775

Review 2 (p. 63–66)

1. (a) 55,382 (b) 200,040,012
2. (a) Twenty-eight thousand, seven hundred forty
   (b) Thirty-five million, eighty-four thousand
3. (a) 38,615; 68,615
   (b) 0; −3; −6
4. (a) 8000 (b) 10,501
   (c) 67,000
5. 7000
6. (a) 0 (b) hundred thousands
7. $2312
8. (a) A = 11,230 B = 11,290
   (b) −22, −4, 9
9. $90,400
10. 1, 2, 3, 4, 6, 9, 12, 18, 36
11. 23
12. 30; 60
13. 27
14. (a) < (b) <
    (c) = (d) <
    (e) > (f) <
15. (a) −1
    (b) −4
    (c) −12
    (d) −5
16. 50 × 24 = 1200
    (1200 ÷ 3) × $1 = $400
    He received $400.
17. 9600 ÷ 3 = 3200
    There were 3200 children.
18. (2000 − 1860 − 15) ÷ 5 = $25
    The cost of one box of CD is $25.

Unit 3

Exercise 1 (p. 67–68)

1. (a) 4 (b) 3
2. (a) 9 (b) 4
3. (a) $\frac{3}{12}$ (b) $\frac{8}{10}$
   (c) $\frac{1}{2}$ (d) $\frac{3}{4}$
4. These are the pairs: $\frac{4}{10}=\frac{2}{5}$; $\frac{1}{2}=\frac{5}{10}$;

$\frac{9}{12} = \frac{3}{4}$; $\frac{2}{10} = \frac{1}{5}$; $\frac{10}{12} = \frac{5}{6}$; $\frac{1}{3} = \frac{3}{9}$; $\frac{6}{20} = \frac{3}{10}$; $\frac{8}{12} = \frac{2}{3}$

Exercise 2 (p. 69–70)

1. (a) 9; 4
   (b) 3; 8
   (c) 16; 3
   (d) 4; 9
   (e) 12; 8
2. (a) 8 (b) 8
   (c) 3 (d) 6
3. (a) $\frac{3}{4}$ (b) $\frac{4}{5}$
   (c) $\frac{2}{3}$ (d) $\frac{1}{2}$
   (e) $\frac{2}{5}$ (f) $\frac{3}{4}$
   (g) $\frac{2}{5}$ (h) $\frac{2}{5}$
4. (a) $\frac{3}{5}$; $\frac{4}{5}$
   (b) $\frac{3}{8}$; $\frac{6}{8}$ (or $\frac{3}{4}$); $\frac{7}{8}$
5. (a) $\frac{3}{10}$, $\frac{2}{5}$, $\frac{7}{10}$
   (b) $\frac{5}{12}$, $\frac{1}{2}$, $\frac{3}{4}$

Exercise 3 (p. 71–72)

1. (a) 5; 12
   (b) 4; 8; 7; 8
   (c) 4; 10; 7; 10
2. $\frac{3}{4}$; $\frac{5}{6}$; $\frac{7}{9}$; $\frac{8}{9}$; $\frac{3}{10}$; $\frac{1}{2}$; $\frac{5}{8}$; $\frac{7}{8}$; $\frac{3}{4}$; $\frac{1}{3}$

Exercise 4 (p. 73–74)

1. (a) 1; 4
   (b) 4; 6; 1; 6
   (c) 8; 12; 7; 12
2. $\frac{1}{3}$; $\frac{1}{8}$; $\frac{4}{9}$; $\frac{2}{3}$; $\frac{3}{10}$; $\frac{5}{12}$; $\frac{1}{2}$; $\frac{1}{12}$; $\frac{1}{4}$; Quadrilateral

Exercise 5 (p. 75–76)

1. $\frac{5}{8}$
2. $\frac{1}{3}$ m
3. $\frac{2}{3}$
4. $\frac{2}{5}$ liter
5. $\frac{1}{5}$ yd

Exercise 6 (p. 77–78)

1. (a) $3\frac{1}{2}$ (b) $2\frac{4}{5}$
   (c) $2\frac{1}{6}$ (d) $3\frac{7}{8}$
2. (a) $1\frac{3}{5}$; $2\frac{2}{5}$
   (b) $3\frac{1}{5}$
   (c) $2\frac{3}{4}$
   (d) $2\frac{2}{3}$

Exercise 7 (p. 79–80)

1. (a) $\frac{6}{3}$ (b) $\frac{8}{4}$
   (c) $\frac{11}{6}$ (d) $\frac{13}{5}$
2. (b) $2\frac{4}{9}$; $\frac{22}{9}$
   (c) $1\frac{2}{3}$; $\frac{5}{3}$
   (d) $3\frac{3}{4}$; $\frac{15}{4}$
   (e) $2\frac{3}{5}$; $\frac{13}{5}$
   (f) $2\frac{7}{8}$; $\frac{23}{8}$

Exercise 8 (p. 81–82)

1. (a) $2\frac{3}{4}$ (b) $3\frac{3}{5}$
2. $1\frac{2}{3}$; $2\frac{1}{3}$; 3; $3\frac{2}{3}$
3. (a) $2\frac{1}{2}$ (b) $1\frac{7}{10}$
   (c) $1\frac{1}{6}$ (d) $2\frac{1}{3}$
   (e) $2\frac{1}{5}$ (f) $2\frac{1}{4}$
   (g) $1\frac{3}{8}$ (h) $4\frac{1}{2}$
   (i) 3 (j) 4

Exercise 9 (p. 83–85)

1. (a) 6 (b) 6; 8
2. (a) $\frac{11}{6}$ (b) $\frac{19}{8}$
3. (a) $\frac{7}{5}$ (b) $\frac{5}{4}$
   (c) $\frac{19}{8}$ (d) $\frac{21}{10}$

(e) $\frac{19}{6}$ (f) $\frac{10}{3}$
(g) $\frac{5}{2}$ (h) $\frac{23}{5}$
(i) $\frac{13}{9}$ (j) $\frac{29}{12}$

4. $\frac{4}{4}$; $\frac{7}{4}$; $\frac{9}{4}$; $\frac{11}{4}$; $\frac{14}{4}$

5. These are the pairs: $1\frac{1}{3} = \frac{4}{3}$;
$1\frac{1}{4} = \frac{5}{4}$; $1\frac{1}{5} = \frac{6}{5}$; $1\frac{1}{6} = \frac{7}{6}$; $1\frac{1}{7} = \frac{8}{7}$;
$1\frac{1}{8} = \frac{9}{8}$; $1\frac{1}{9} = \frac{10}{9}$; $2\frac{2}{3} = \frac{8}{3}$; $2\frac{1}{2} = \frac{5}{2}$;
$1\frac{3}{4} = \frac{7}{4}$; $2\frac{1}{5} = \frac{11}{5}$; $1\frac{5}{6} = \frac{11}{6}$;
$1\frac{7}{8} = \frac{15}{8}$

Exercise 10 (p. 86–87)

1. (a) 3 (b) $2\frac{1}{2}$
(c) 3 (d) $2\frac{2}{3}$
(e) $6\frac{1}{3}$ (f) $3\frac{1}{3}$

2. These are the pairs: $3\frac{7}{4} = 4\frac{3}{4}$;
$1\frac{7}{5} = 2\frac{2}{5}$; $2\frac{5}{4} = 3\frac{1}{4}$; $3\frac{7}{6} = 4\frac{1}{6}$;
$2\frac{3}{2} = 3\frac{1}{2}$; $1\frac{4}{3} = 2\frac{1}{3}$

3. (a) 1 (b) 1
(c) $1\frac{1}{2}$ (d) $1\frac{2}{7}$
(e) $1\frac{1}{3}$ (f) $1\frac{1}{8}$
(g) $1\frac{1}{6}$ (h) $1\frac{1}{10}$

4. (a) $\frac{2}{9}$ (b) $\frac{7}{12}$
(c) $1\frac{1}{4}$ (d) $1\frac{3}{8}$
(e) $2\frac{3}{7}$ (f) $\frac{1}{5}$

5. (a) > (b) <
(c) < (d) =
(e) < (f) <
(g) = (h) >
(i) > (j) =

Exercise 11 (p. 88–89)

1. (a) $\frac{3}{2}$ (b) $\frac{5}{3}$ (c) $\frac{7}{4}$

2. $2\frac{2}{3}$; $3\frac{1}{3}$; $2\frac{2}{5}$; $2\frac{3}{4}$; $4\frac{3}{5}$; $6\frac{2}{3}$

3. (a) 4 (b) $2\frac{1}{5}$
(c) $2\frac{1}{8}$ (d) 9

Exercise 12 (p. 90–92)

1. (a) There are 8 fruits in each part.
(b) There are 6 popsicles in each part.

2. (a) $\frac{2}{7}$ (b) $\frac{2}{3}$
(c) $\frac{3}{4}$ (d) $\frac{3}{7}$

3. (a) $\frac{1}{2}$ (b) $\frac{5}{6}$
(c) $\frac{1}{4}$ (d) $\frac{3}{8}$
(e) $\frac{1}{5}$ (f) $\frac{2}{3}$

4. (a) $\frac{2}{5}$; $\frac{3}{5}$ (b) $\frac{1}{2}$; $\frac{1}{6}$; $\frac{1}{3}$
(c) $\frac{1}{2}$

Exercise 13 (p. 93–94)

1. (a) Color 4 turtles.
(b) Color 3 sandwiches.
(c) Color 6 socks.
(d) Color 10 cupcakes.

2. (a) 6 (b) 3
(c) 8 (d) 6

3. (a) 5; 15 (b) 5; 15
(c) 7; 14 (d) 3; 21
(e) 2; 6 (f) 4; 20

Exercise 14 (p. 95–97)

1. (a) 2 (b) 3
(c) 4 (d) 2; 4
(e) 9 (f) 9

2. (a) 4 (b) 5
(c) 5 (d) 3
(e) 16 (f) 16
(g) 15 (h) 15

3. (a) 10 (b) 15
(c) 24 (d) 30
(e) 32 (f) 45
(g) 60 (h) 84

Exercise 15 (p. 98–99)

1. (a) $\frac{1}{5}$ (b) $\frac{4}{5}$ (c) $\frac{5}{12}$
2. (a) $\frac{1}{3}$ (b) $\frac{5}{9}$ (c) $\frac{9}{20}$
3. $\frac{3}{4}$
4. $\frac{2}{5}$
5. $\frac{3}{8}$
6. $\frac{2}{5}$

Exercise 16 (p. 100–101)

1. (a) 10 (b) 15
2. (a) $15 (b) $25
3. 6
4. 16
5. $18

Exercise 17 (p. 102–104)

1. $20
2. 18
3. $26
4. 9
5. 72
6. 90

Exercise 18 (p. 105–106)

1. (a) $60 (b) $18
2. (a) 42 (b) 24
3. 18 kg
4. $30

Exercise 19 (p. 107–109)

1. $\frac{4}{5}$
2. $\frac{2}{5}$
3. $\frac{3}{10}$
4. (a) 120 (b) $\frac{1}{4}$
5. 40 ft
6. 18

Review 3 (p. 110–116)

1. (a) sixty thousand, five hundred
   (b) forty-two million, eight hundred nineteen thousand
   (c) one hundred four
2. (a) 75,612
   (b) 80,002
3. 3000
4. 100,000
5. 80,036, 80,360, 83,060, 83,600, 86,300
6. 6300
7. 6, 12, 18, 24, 30
8. 4
9. 1602
10. 210
11. 622 R 2
12. −3; 2
13. $\frac{5}{12}$, $\frac{3}{4}$, 1, $\frac{7}{6}$
14. $\frac{1}{4}$
15. 60
16. 5345
17. $\frac{1}{3}$
18. $\frac{7}{4}$
19. $4\frac{4}{5}$
20. 4 ÷ 5
21. (a) 2 (b) 54
    (c) 80 (d) 3
    (e) 0 (f) 26
    (g) 3
22. $10,500
23. 198
24. 1300
25. $420
26. 18
27. $\frac{5}{6}$
28. 4 sheets
29. 800
30. (a) $\frac{7}{10}$ lb (b) $\frac{1}{10}$ lb
31. $1290
32. 86
33. 500 ml

Unit 4

Exercise 1 (p. 117–120)

1. A. 3 B. 4 C. 4
   D. 5 E. 6 F. 6
2. A. 2 B. 1 C. 3
   D. 2 E. 3 F. 3
3. (Right angles) ∠c; ∠d
   (Acute angles) ∠a; ∠e

(Obtuse angles) ∠b; ∠f

4. (Right angles) ∠a, ∠b, ∠c, ∠d, ∠h, ∠l, ∠m, ∠n, ∠p, ∠y
(Acute angles) ∠e, ∠j, ∠q, ∠s, ∠u, ∠w
(Obtuse angles) ∠f, ∠g, ∠I, ∠k, ∠o, ∠r, ∠t, ∠v, ∠x

Exercise 2 (p. 121–122)

1. ∠b = 70°; ∠c = 50°; ∠d = 30°; ∠e= 88°
2. ∠a = 100°; ∠b = 120°; ∠c = 140°; ∠d = 160°; ∠e = 110°; ∠f = 130°

Exercise 3 (p. 123–127)

1. ∠a = 62°; ∠b = 90°; ∠c = 107°; ∠d = 65°; ∠e = 64°; ∠f = 122°
2. ∠a = 82°; ∠b = 125°; ∠c = 120°; ∠d = 68°; ∠e = 140°; ∠f = 143°

Exercise 4 (p. 128–131)

1. ∠b = 360° − 160° = 200°
   ∠c = 360° − 130° = 230°
   ∠d = 360° − 113° = 247°
   ∠e = 360° − 90° = 270°
2. ∠a = 360° − 60° = 300°
   ∠b = 360° − 25° = 335°
   ∠c = 360° − 65° = 295°
   ∠d = 360° − 37° = 323°
   ∠e = 360° − 32° = 328°
   ∠f = 360° − 79° = 281°
3. ∠a = 60°
   ∠b = 213°
   ∠c = 250°
   ∠d = 29°
   ∠e = 97°
   ∠f = 294°

Exercise 5 (p. 132–133)

1. not perpendicular; not perpendicular; perpendicular; perpendicular; not perpendicular
2. XZ; RQ; KH ⊥ KJ; KJ ⊥ JI; AB ⊥ BC; BC ⊥ CD; AE ⊥ DE

Exercise 7 (p. 136–137)

1. AB // EF; MN // YZ; PS // RQ; NM // KL; NK // ML
2. (Parallel lines) AB // CD; EF // GH; XY // WZ; ON // LM; OL // NM
   (Perpendicular lines) JI ⊥ JK; XW ⊥ WZ; SR ⊥ PQ; XY ⊥ WX

Exercise 9 (p. 140–141)

1. (a) PS = 5 cm; PQ = 3 cm; QR // PS; PS // QR; PQ ⊥ QR and PS
   (b) WZ = 10 m; WX = 4 m; WZ // XY; WX // ZY
   (c) AB = 8 cm; CD = 8 cm; AD = 8 cm; AB // DC; BC // AD; AB ⊥ BC and AD
2. (a) EB = 3 cm, FE = 5 cm
   (b) JK = 5 cm, MH = 9 cm
   (c) TS = 4 m, XS = 17 m

Exercise 10 (p. 142–143)

1. (a) True (b) False (c) False
   (d) False (e) True (f) True
2. (a) 8 in.; 8 in.
   (b) 8 yd
3. (a) scalene
   (b) isosceles
   (c) equilateral
   (d) scalene
   (e) equilateral
4. isosceles

Exercise 11 (p. 144–145)

1. (a) 40 in. (b) 34 yd
2. (a) 32 ft (b) 64 in.
3. AD
4. CD = 10 cm; OB = 5 cm; OE = 5 cm

Exercise 12 (p. 146–147)

2. (a) 6; 12; 8
   (b) 5; 9; 6
   (c) 5; 8; 5
   (d) 4; 6; 4

Exercise 13 (p. 148–149)

1. A; C; F; G; H
2. B; C; E; G; H

Exercise 14 (p. 150–152)

1. A
2. A and D
3. A and D

Exercise 15 (p. 153–155)

1. C
2. C
3. C

Review 4 (p. 156–161)

1. 56,952
2. 85,320
3. 76,410
4. 6
5. 8, 16, 24, 32, 40
6. 15
7. 130 cm
8. 10,000
9. (a) < (b) > (c) <
10. $\frac{3}{8}$
11. $3\frac{1}{4}, 3\frac{7}{8}$
12. $\frac{1}{3} \times 1857 = 619$
    A printer costs \$619.
13. $6 \times \$1460 = \$8760$
    He earns \$8760 in 6 months.
14. $64 \div 4 = 16$
    Each side is 16 cm.
15. $\frac{2}{5}$
16. $\frac{2}{9}, \frac{2}{7}, \frac{2}{3}, \frac{9}{7}$
17. $1\frac{5}{8}, 1\frac{3}{4}, 2$
18. $\frac{3}{5}$
19. $\frac{13}{5}$
20. $4\frac{3}{4}$
21. 6
22. $3\frac{3}{5}$ yd
23. 30
24. $\frac{1}{8} \times 2 = \frac{2}{8} = \frac{1}{4}$
    Each girl received $\frac{1}{4}$ of a cake.
25. $\frac{3}{4} + \frac{1}{2} + 1 = 2\frac{1}{4}$
    She bought $2\frac{1}{4}$ kg of vegetables altogether.
26. 9:45 p.m.
28. (a) 70 cm (b) 48 m
29. (a) 10 cm (b) 5 cm
31. He made 395 sticks of beef kebab.
32. 5250
33. (a) She used 10 yd of the ribbon.
    (b) Each bow was $1\frac{2}{3}$ yd.

Unit 5

Exercise 1 (p. 162–164)

1. B – 6 cm, 2 cm, 12 cm^2
   C – 7 cm, 3 cm, 21 cm^2
   D – 5 cm, 3 cm, 15 cm^2
   E – 4 cm, 3 cm, 12 cm^2
2. B – 4 cm, 3 cm, 12 cm^2
   C – 6 cm, 4 cm, 24 cm^2
   D – 7 cm, 3 cm, 21 cm^2
   E – 8 cm, 1 cm, 8 cm^2
3. B – 24 $in.^2$
   C – 35 m^2
   D – 54 yd^2
   E – 40 ft^2
   F – 120 cm^2

Exercise 2 (p. 165–168)

1. 5 cm^2, 12 cm
   6 cm^2, 12 cm
   7 cm^2, 12 cm
   8 cm^2, 14 cm
   10 cm^2, 14 cm
   7 cm^2, 16 cm
3. (a) 40 cm^2, 28 cm
   (b) 72 mi^2, 36 mi
   (c) 81 km^2, 36 km
4. A – 12 cm^2, 16 cm
   B – 25 cm^2, 20 cm
   C – 24 cm^2, 22 cm
   D – 36 cm^2, 24 cm
   E – 24 cm^2, 20 cm
   (a) C, E
   (b) B, E
   (c) 11 cm^2
   (d) 2 cm

Exercise 3 (p. 169–171)

1. (a) CD = 14 – 9 = 5 cm,
   Area = $9 \times 5 = 45$ cm^2
   (b) L + W = $42 \div 2 = 21$ in.
   EF = 21 – 6 = 15 in.
   Area = $15 \times 6 = 90$ $in.^2$
   (c) L + W = $26 \div 2 = 13$ m
   SR = 13 – 7 = 6 m

Area = $7 \times 6 = 42$ m^2

2. A – 6 cm, 28 cm
   B – 16 ft, 52 ft
   C – 10 in., 40 in.
   D – 15 m, 48 m
   E – 14 yd, 44 yd
3. $4 \times 3 = 12$
   $12 \times 30 = 360$
   The area of the picture is 360 cm^2.
4. $5 \times 4 = 20$
   $20 \times \$12 = \$240$
   It cost \$240 to carpet the floor of the room.
5. $2 \times (40 + 30) = 140$
   $140 \times \$7 = \$980$
   It will cost \$980.

Exercise 4 (p. 172–173)

1. (a) 66 cm (b) 48 m
   (c) 90 in.
2. (a) 68 cm (b) 80 m
   (c) 106 yd

Exercise 5 (p. 174)

1. (a) 162 cm^2 (b) 335 m^2
   (c) 786 yd^2

Exercise 6 (p. 175–176)

1. (a) $(16 \times 8) - (12 \times 4) = 128 - 48 = 80$ m^2
   (b) $(9 \times 5) - (3 \times 3) = 45 - 9 = 36$ m^2
   (c) $(20 \times 16) - (8 \times 5) = 320 - 40 = 280$ in.^{2}
2. $(14 \times 22) - (12 \times 20) = 68$
   Area of path is 68 m^2.
3. $(96 \times 60) - (90 \times 54) = 5760 - 4860 = 900$ cm^2
   Area of border is 900 cm^2.

Review 5 (p. 177–184)

1. (a) \$5703
   (b) \$34,000,864
   (c) −140
2. hundred
3. 100
4. 1,534,502
5. (a) −3 (b) −8 (c) -1
   (d) 999,998
   (e) 199,999,800
6. (a) < (b) < (c) <
   (d) > (e) < (f) >
7. (a) 6000 (b) 4 (c) 9
   (d) 16 (e) 7
8. $\frac{23}{5}$
9. $35 + 10 + 5 = 50$
   $\frac{10}{50} = \frac{1}{5}$
   $\frac{1}{5}$ of her money are dimes.
10. 750 ml
11. $6 \times 4 = 24$ cm
12. $14 \times 3 = 42$ cm
13. $(10 \times 2) + (4 \times 2) = 28$ in.
14. $16 \times 4 = 64$ cm^2
15. (a) Mary (b) Dani
16. (a) $\angle x = 145°$, $\angle y = 35°$
    (b) $\angle x = 306°$, $\angle y = 54°$
17. (a) PQ (b) CD
18. (a) 160 cm (b) 28 yd
19. (a) False (b) True (c) False
    (d) False (e) True
20. $\frac{2000}{4} = 500$
21. Equilateral triangle
22. (a) Thursday
    (b) $210 + 150 + 90 + 60 + 120 = 630$
23. $8 \times 8 = 64$
    Length of side = 8 cm
24. Perimeter = 28 m
    Area = 32 m^2
25. C
26. $1080 \div 3 = 360$
    Shorter piece is 360 in. long.
27. $45\frac{1}{3} + 30 + 25 + 40 + 75\frac{2}{3} = 216$
    He walked 216 m.
28. $9 \times 4 = 36$
    Area of rectangle is 36 cm^2.
    $6 \times 6 = 36$
    Length of each side of square is 6 cm.
29. $(8 \times 6) - (6 \times 4) = 48 - 24 = 24$ m^2
    Area not covered by the carpet is 24 m^2.