

AP Book NS6-1
page 33

1. a) Tens
b) Millions
c) Hundred thousands
d) Hundreds
e) Ones
f) Ten thousands
g) Thousands
2. a) Thousands
b) Millions
c) Ones
d) Ones
e) Hundreds
f) Ten thousands
g) Tens
h) Ten thousands
i) Hundred thousands

3. a)

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

b)

		6	2	5	0	7
--	--	---	---	---	---	---

c)

5	6	0	4	8	9	1
---	---	---	---	---	---	---

d)

			1	3	9	9
--	--	--	---	---	---	---

e)

					1	7
--	--	--	--	--	---	---

f)

	9	9	8	2	6	0
--	---	---	---	---	---	---

AP Book NS6-2
page 34

1. a) 2; 70; 800; 4 000; 50 000; 600 000
b) 7; 30; 500; 8 000; 20 000; 100 000
2. a) 70
b) 700
c) 700
d) 700 000
e) 7000
f) 7
g) 70
h) 7
3. a) 500
b) 30 000
c) 80
d) 70 000
e) 2

AP Book NS6-3
page 35

1. a) millions
b) thousands
c) thousands
d) millions
2. a) Three hundred seventy-five million
b) Thirty-six thousand
c) Seventy-nine million
d) Seven hundred seventy thousand
3. a) 283 422 000
b) 73 057 104
c) 907 403 021
4. a) Two hundred seventy-five million three hundred eighty-one thousand two hundred ten
b) Eighty-nine million twenty-three thousand one hundred
c) Nine hundred ninety-eight million three hundred twenty-five thousand five hundred ninety-three
5. Two hundred forty-eight million years ago;
Two hundred fourteen million years ago;
Two hundred six million years ago;
Sixty-five million years ago.
6. Answers will vary.
a) A number in the hundred thousands
b) A number in the hundred millions
7. a) Fifty-seven million six hundred thousand
b) One hundred seven million five hundred twenty thousand

- c) One hundred forty-eight million six hundred forty thousand
8. Four billion four hundred sixty-eight million six hundred forty thousand
 9. Teacher to check, answers may vary.

AP Book NS6-4
page 36

1. a) 2 435
b) 3 316
c) 2 thousands + 3 hundreds + 2 tens + 8 ones = 2 328
2. a) 3 thousands, 4 hundreds, 6 tens, 8 ones
b) 1 thousand, 5 hundreds, 4 tens, 2 ones
c) 2 thousands, 6 hundreds, 0 tens, 9 ones
3. a) 4 438
b) 2 490

AP Book NS6-5
page 38

1. a) 2 millions + 5 hundred thousands + 3 ten thousands + 6 thousands + 7 hundreds + 8 tens + 4 ones
b) 6 millions + 2 hundred thousands + 3 ten thousands + 5 thousands + 4 hundreds + 1 ones
c) 3 millions + 5 ten thousands + 6 thousands + 2 hundreds + 6 ones

2. a) $70\,000 + 2\,000 + 600 + 10 + 3$
b) $30 + 6$
c) $500 + 20 + 6$
d) $10\,000 + 2\,000 + 50 + 2$
e) $2000 + 300 + 80 + 2$
f) $50\,000 + 6\,000 + 300 + 80 + 4$
g) $3\,000\,000 + 80\,000 + 2\,000 + 300 + 80 + 5$
3. a) 6 747
b) 868
c) 3 032
d) 56 493
e) 16 234
f) 32 500
g) 93 607
BONUS:
h) 2 370 205
4. a) 40
b) 80
c) 700
d) 200
e) 2
f) 9 000
g) 80
h) $7000 + 5$
i) $700 + 2$
5. a) $4\,000 + 300 + 50 + 4$
b) $2000 + 600 + 4$
6. Teacher to check the base ten model sketch.
 $8564 =$ Eight thousand five hundred sixty four.
 $8564 = 8$ Thousands + 5 Hundreds + 60 Tens + 4 Ones
 $8564 = 8000 + 500 + 60 + 4$
7. 14
8. 7 (39, 48, 57, 66, 75, 84, 93)
9. Teacher to check.
10. 1 000

AP Book NS6-6
page 40

1. a) 5; 20; 700;
5; 30; 700;
735 > 725
b) 7; 20; 400;
7; 20; 500;
527 > 427
2. a) 83 762
b) 273 605
c) 614 858
d) 483 250
e) 813 349
f) 579 274
g) 324
h) 196 385
3. a) 641 597
b) 389 583
c) 603 470
d) 621 492
4. a) >
b) <
c) >
d) <
e) >
f) >
g) <
h) >
i) <

AP Book NS6-7
page 41

1. a) 10 more
b) 100 less
c) 10 more
d) 10 more
2. a) 1 000 less
b) 1 000 less
c) 100 less
d) 1 000 more
3. a) 1 000 more
b) 1 000 less
c) 10 000 less
d) 10 000 more
e) 1 000 more
f) 1 000 more
4. a) 100 000 more

- b) 10 000 less
c) 10 000 more
d) 100 000 less
e) 10 000 less
f) 100 000 less
5. a) 10 000 less
b) 100 less
c) 10 000 more
d) 10 000 less
e) 10 less
f) 1 000 more
6. a) 3 792
b) 39 827
c) 3 882
d) 14 023
e) 297 532
f) 22 685
g) 18 305
h) 104 253
i) 173 528
j) 168 253
7. a) 236
b) 28 583
c) 39 045
d) 42 227
e) 64 283
f) 68 372
g) 2863
h) 475
i) 737
j) 31 487
k) 81 801
l) 15 836
m) 392 507
n) 1 337 652
8. a) 10
b) 100
c) 10
d) 100
e) 1000
f) 100
g) 100
h) 10
i) 100
j) 10 000
k) 1 261 053

BONUS:

9. a) 6 437, 6 447
b) 49 640, 50 640
c) 624 843
d) 28 383
10. a) 827 325 is 10 less than 827 335
b) 482 305 is 100 000 greater than 382 305
c) 915 778 is 10 000 less than 925 778

AP Book NS6-8
page 43

1. a) 254, **416**
b) **3 128**, 2 209
2. a) Forty-eight
b) 3 508
c) Ninety-four
d) 662
e) Sixty thousand four hundred twenty-five
3. a) 67, 68, 76, 78, 86, **87**
b) 24, 29, 42, 49, 92, **94**
c) 20, 25, 50, **52**
4. a) 6 432
b) 9 874
c) 4 210
5. a) 84 321
b) 98 521
c) 65 431
6.

Greatest	Least
87 521	12 578
95 321	12 359
53 310	01 335

The students' "in between" numbers will vary – teacher to check.
7. a) 683 759, 693 231, 693 238
b) 42 380, 47 832, 473 259

- c) 385 290, 532 135, 928 381
d) 195, 2 575, 38 258
8. 9 999
9. a) >
b) <
c) >
d) <
10. a) Ottawa
b) 414 284, 662 401, 774 072
11. a) 999
b) 9 999
c) 99 999
12. There are **2** correct answers, example: 42 310 and 42 130.
13. Answers will vary – number will begin with 6 digit and end with either the 5 or 7 digit; the second digit can be 4, 5 or 7.
14. a) 4
b) 2

AP Book NS6-9
page 45

1. a) 4 tens + 12 ones = 5 tens + 2 ones
b) 2 tens + 18 ones = 3 tens + 8 ones
2. a) 5 tens + 3 ones
b) 8 tens + 5 ones
c) 1 tens + 4 ones
d) 2 tens + 7 ones
e) 3 tens + 2 ones
f) 1 tens + 6 ones
g) 1 tens + 1 ones
h) 8 tens + 2 ones
i) 9 tens + 3 ones

	Hundreds	Tens
3. b)	6 + 2 = 8	4
c)	3 + 1 = 4	5
d)	6 + 3 = 9	6
e)	8 + 1 = 9	9

- f)

$2 + 2 = 4$	0
-------------	---
4. a) 6 hundreds
+ 8 tens
+ 9 ones
- b) 2 hundreds
+ 7 tens
+ 5 ones
- c) 10 hundreds
+ 8 tens
+ 9 ones
5.

T	H
$3 + 1 = 4$	2
$8 + 2 = 10$	0
- b) $3 + 1 = 4$ 2
- c) $8 + 2 = 10$ 0
6. a) 7 thousands
+ 3 hundreds
+ 2 tens + 5 ones
- b) 6 thousands
+ 4 hundreds
+ 2 tens + 6 ones
- c) 9 thousands
+ 5 hundreds
+ 3 tens
7. a) 3 thousands
+ 3 hundreds
+ 2 tens + 5 ones
- b) 5 thousands
+ 2 hundreds
+ 8 tens + 6 ones
- c) 5 ten thousands
+ 7 thousands
+ 5 hundreds
+ 7 tens + 8 ones
8. Yes: Teresa needs 6 590 blocks to build her model, and she has 6 700 blocks.

AP Book NS6-10
page 47

1. a)

tens	ones
2	6
3	6
5	12
6	2
- b)

tens	ones
5	7
2	7
7	14
8	4
2. a) 1, 3
Final answer: 33

- b) 1, 0
Final answer: 60
- c) 1, 6
Final answer: 76
- d) 1, 2
Final answer: 92
- e) 1, 2
Final answer: 92
3. a) 71
- b) 81
- c) 91
- d) 102
- e) 73
- f) 81
- g) 78
- h) 93
- i) 82
- j) 97

AP Book NS6-11
page 48

1. 4 hundreds + 8 tens
+ 3 ones;
2 hundreds + 4 tens
+ 5 ones;
6 hundreds + 12 tens
+ 8 ones;
7 hundreds + 2 tens
+ 8 ones.
2. a) 617
- b) 826
- c) 746
- d) 846
- e) 619
3. a) 491
- b) 617
- c) 418
- d) 624
- e) 760
- f) 729
4. a) 795
- b) 729
- c) 941
- d) 419

AP Book NS6-12
page 49

1. 5 thousands + 4 hundreds
+ 8 tens + 6 ones;
3 thousands + 7 hundreds
+ 1 tens + 3 ones;
8 thousands +
11 hundreds + 9 tens
+ 9 ones;
9 thousands + 1 hundreds
+ 9 tens + 9 ones.
2. a) 7 395
- b) 7 158
- c) 9 378
- d) 8 097
- e) 8 378
3. a) 9 914
- b) 6 838
- c) 6 815
- d) 2 749
- e) 9 845
4. a) 6 981
- b) 6 377
- c) 9 828
- d) 9 917
- e) 8 378
- f) 9 086
- g) 8 716
- h) 6 598
- i) 9 718
- j) 6 029
5. a) 9 899
- b) 9 831
- c) 8 848
- d) 8 407
6. a) 6 728
- b) 91 628
- c) 474 917
- d) 748 188
- e) 13 322
- f) 14 535
- g) 4 400
7. a) 828
- b) 1 111
- c) 1515
- d) 58 285
- e) 989

- f) 1 221
- g) 47 674

AP Book NS6-13
page 51

1.

Tens	Ones
4	13
5	15
3	15
4	13
- a)

4	13
---	----
- b)

5	15
---	----
- c)

3	15
---	----
- d)

4	13
---	----
2. a) 45
- b) 28
- c) 37
- d) 18
- e) 18
3. a) Help;
8 is less than 9.
- b) No;
4 is greater than 3.
- c) Help;
5 is less than 7.
- d) No;
8 is greater than 2.
- e) No;
8 is greater than 5.
- f) Help;
1 is less than 5.
- g) No;
5 is greater than 4.
- h) Help;
6 is less than 8.
- i) Help;
5 is less than 6.
- j) Help;
3 is less than 7.
- k) Help;
6 is less than 9.
- l) No;
5 is greater than 2.
4. a) 185
- b) 482
- c) 373
- d) 241
5. a) 536
- b) 124
- c) 308
- d) 355
6. a) 478

- b) 478
- c) 473
- d) 397
- 7. a) 2 832
- b) 2 721
- c) 2 850
- d) 6 361
- 8. a) 1 714
- b) 3 062
- c) 5 081
- d) 28 211
- 9. a) 7 779
- b) 3 759
- c) 2 768
- d) 2 978
- 10. a) 532
- b) 68
- c) 3 514
- d) 4 889

AP Book NS6-14
page 55

- 1. 70 are girls
- 2. 453 stamps
- 3. 8 110 km
- 4. 1 007 509 people
- 5. 168 cans
- 6. 85 years
- 7. Answers will vary:
The difference between a three-digit number and its reverse number is always 198 because regardless of the numbers, there will always be 198 numbers in-between.
- 8. 256 km
- 9. 250 km

AP Book NS6-15
page 56

- 1. a) Vancouver Island - 31 290
- Newfoundland – 108 860
- Ellesmere Island – 196 240
- Baffin Island – 507 450

- b) 476 160 km²
- c) 87 380 km²
- d) No.
- 507 450 + 31 290 = 538 740. Which is less than 2 166 086
- 2. a) 87 645
- b) 56 748; 56 784
- c) Teacher to check – there are 16 correct answers.
Example: 86 754
- d) 68 754

3. 844 400

4. a)
$$\begin{array}{r} 1 \quad 4 \\ + \quad 2 \quad 2 \\ \hline 3 \quad 6 \end{array}$$

OR

$$\begin{array}{r} 1 \quad 2 \\ + \quad 2 \quad 4 \\ \hline 3 \quad 6 \end{array}$$

b)
$$\begin{array}{r} 2 \quad 4 \\ - \quad 1 \quad 3 \\ \hline 1 \quad 1 \end{array}$$

OR

$$\begin{array}{r} 4 \quad 2 \\ - \quad 3 \quad 1 \\ \hline 1 \quad 1 \end{array}$$

c)
$$\begin{array}{r} 3 \quad 4 \\ + \quad 2 \quad 1 \\ \hline 5 \quad 5 \end{array}$$

OR

$$\begin{array}{r} 4 \quad 3 \\ + \quad 1 \quad 2 \\ \hline 5 \quad 5 \end{array}$$

- 5. a) Answer depends on the year (currently 471 yrs).
- b) Copernicus to Galileo: 67 years; Galileo to Newton: 57 years; Copernicus to Newton: 124 years

AP Book NS6-16
page 57

- 1. b) 3 rows; 5 dots in each row; $5 \times 3 = 15$
- c) 4 rows; 5 dots in each row; $4 \times 5 = 20$
- 2. a) 4×3
- b) 2×5
- c) 5×3
- d) 7×2
- 3. a) $\dots\dots$
- b) $\dots\dots\dots$
- c) $\dots\dots\dots$
- d) $\dots\dots\dots$
- e) \dots
- 4. a) 1×6 ; 2×3 ; 3×2 ; 6×1
- b) 1×8 ; 2×4 ; 4×2 ; 8×1
- c) 1×9 ; 3×3 ; 9×1
- d) 1×10 ; 2×5 ; 5×2 ; 10×1
- e) 1×12 ; 2×6 ; 3×4 ; 4×3 ; 6×2 ; 12×1
- 5. **6:** 1, 2, 3, 6
8: 1, 2, 4, 8
9: 1, 3, 9
10: 1, 2, 5, 10
12: 1, 2, 3, 4, 6, 12

AP Book NS6-17
page 58

- 1. a) 1
- b) No
- 2. 2, 3, 5, 7
- 3. 10, 12, 14, 15, 16, 18, 20
- 4. 29
- 5. 13, 17, 29
- 6. Primes: 2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47, 53, 59, 61, 67, 71, 73, 79, 83, 89, 97
- 7. 11, 13; 17, 19; 5, 7.

AP Book NS6-18
page 59

- 1. a) 1, 5, 25
- b) 1, 2, 4, 8
- c) 1, 2, 3, 4, 6, 12
- d) 1, 2, 4, 8, 16
- e) 1, 3, 9
- f) 1, 2, 3, 6, 9, 18
- g) 1, 2, 5, 10, 25, 50
- h) 1, 3, 5, 9, 15, 45
- i) 1, 2, 3, 4, 5, 6, 10, 12, 15, 20, 30, 60
- j) 1, 2, 3, 6, 7, 14, 21, 42
- 2. Composite numbers: 30, 32, 33, 34, 35, 36
- 3. a) Any primes less than 20
- b) 6, 8, 10, 14
- c) 16
- 4. Cross out: 19, 34, 50
- 5. 10, 20, 30
- 6. Answers will vary. Example: 8, 9, 10
- 7. 15, 21, 27, 33, 39
- 8. 3
- 9. 1
- 10. $4 + 6 + 8 + 9 + 10 = 37$
- 11. There are 5 prime numbers between 30 and 50.

AP Book NS6-19

page 60

1. a) Bottom row:
2, 3, 2
- b) Bottom row:
2, 2, 2, 2
- c) Bottom row:
3, 2, 2, 2
2. a) $5 \times 2 \times 3$
- b) $3 \times 3 \times 2$
- c) $2 \times 2 \times 2$
- d) 7×2
3. a) $5 \times 3 \times 2$
- b) $3 \times 3 \times 2 \times 2$
- c) $3 \times 3 \times 3$
- d) $7 \times 2 \times 2$
- e) $5 \times 5 \times 3$
4. Answers will vary.
Examples:
1st branch – 24
2nd branch – 8×3
3rd branch – $4 \times 2 \times 3$
4th branch – $2 \times 2 \times 2 \times 3$
OR
1st branch 24
2nd branch 12×2
3rd branch $3 \times 4 \times 2$
4th branch $3 \times 2 \times 2 \times 2$

AP Book NS6-20

page 61

1. a) 5×3 tens
= 15 tens
= 150
- b) 3×4 tens
= 12 tens
= 120
2. a) 3×6 tens
= 18 tens
= 180
- b) 6×5 tens
= 30 tens
= 300
- c) 4×5 tens
= 20 tens
= 200
- d) 5×4 tens
= 20 tens
= 200

3. a) 15; 150; 1 500
- b) 6; 60; 600
- c) 12; 120; 1 200
- d) 20; 200; 2 000
4. a) 210
- b) 150
- c) 120
- d) 240
- e) 1 600
- f) 4 000
- g) 400
- h) 1 800
- i) 2 700
- j) 4 200
- k) 160
- l) 2 100
5. Teacher to check.
6. 18 000. With three extra zeros after the three (3000), you need to move the decimal point over three places to the right. If $6 \times 3 = 18$, $6 \times 3000 = 18\ 000$.

AP Book NS6-21

page 62

1. a) $2 \times 20 + 2 \times 5$
- b) $3 \times 10 + 3 \times 5$
2. a) $5 \times 10 + 5 \times 3$
= $50 + 15$
= 65
- b) $4 \times 20 + 4 \times 1$
= $80 + 4$
= 84
- c) $3 \times 40 + 3 \times 3$
= $120 + 9$
= 129
- d) $2 \times 400 + 2 \times 30$
+ 2×2
= $800 + 60 + 4$
= 864
- e) $3 \times 300 + 3 \times 10$
+ 3×2
= $900 + 30 + 6$
= 936
- f) $4 \times 300 + 4 \times 20$
+ 4×1
= $1\ 200 + 80 + 4$
= 1 284

3. a) 36
- b) 156
- c) 186
- d) 147
- e) 155
- f) 129
- g) 306
- h) 88
- i) 2084
- j) 1 863
- k) 2 055
- l) 888
- m) 1 896
- n) 1 688
- o) 848
- p) 842
4. a) 3 284
- b) 2 169

AP Book NS6-22

page 63

1. a) 153
- b) 246
- c) 124
- d) 204
- e) 255
- f) 366
- g) 249
- h) 148
- i) 188
- j) 168
- k) 166
- l) 205
- m) 217
- n) 128
- o) 126
- p) 189
- q) 88
- r) 279
- s) 205
- t) 549
- u) 567
- v) 276
- w) 368
- x) 156
- y) 208

- z) 332
- aa) 186
- bb) 639
- cc) 159
- dd) 186
- ee) 88
- ff) 128
- gg) 255
- hh) 567
- ii) 279
2. a) 189
- b) 300
- c) 305
- d) 188
- e) 168

AP Book NS6-23

page 64

1. a) 1, 2
- b) 1, 5
- c) 2, 0
- d) 3, 6
- e) 1, 8
2. a) 96
- b) 105
- c) 75
- d) 78
- e) 64
- f) 92
- g) 144
- h) 75
- i) 87
- j) 96
3. a) 70
- b) 90
- c) 90
- d) 75
- e) 96
- f) 135
- g) 256
- h) 210
- i) 182
- j) 368

AP Book NS6-24

page 65

- $200 + 30 + 4$
 $\quad\quad\quad \times 2$
 $= 400 + 60 + 8$
 $= 468$
 - $100 + 30 + 3$
 $\quad\quad\quad \times 3$
 $= 300 + 90 + 9$
 $= 399$
- 164
 - 868
 - 936
 - 248
 - 969
- 454
 - 864
 - 672
 - 872
 - 696
- 728
 - 906
 - 968
 - 855
 - 768
- 670
 - 2 947
 - 792
 - 1 206
 - 992
 - 810
- Teacher to check drawings.
 - 228
 - 888
 - 969

AP Book NS6-25

page 66

- 150
 - 150
 - 1 500
 - 1 500
- 1
 - 2
 - 3

- 60;
600;
6 000;
60 000
 - 360;
3600;
36 000;
360 000
 - 850;
8 500;
85 000;
850 000
- 190
 - 560
 - 830
 - 4 200
 - 8 000
 - 1 300
 - 4 000
 - 230
 - 6 000
 - 5 720
 - 28 000
 - 93 000
- $10 \times 30 = 300$
 - $10 \times 20 = 200$
 - $10 \times 60 = 600$
 - $10 \times 70 = 700$
 - $70 \times 100 = 7000$
 - $60 \times 100 = 6000$
- $12 \times 38 = 456$. Al's weekly income is \$456.
- 1 000
 - 10 000 $1\,000\,000 \div 100 = 10\,000$
- 25 723 dimes = \$2 572.30
231 524 pennies = \$2 315.24
25 723 dimes is greater.

AP Book NS6-26

page 67

- 3×10
 - 4×10
 - 7×10
 - 5×10

- $2 \times 10 \times 33$
 - $2 \times 10 \times 21$
 - $3 \times 10 \times 17$
- $2 \times 240 = 480$
 - $3 \times 320 = 960$
 - $4 \times 120 = 480$
 - $5 \times 410 = 2\,050$
- 990
 - 1 200
 - 1 600
 - 1 360
 - 840
 - 2 490
 - 1 280
 - 2 220
 - 1 680
 - 1 590
 - 3 060
 - 4 550
 - 1 800
 - 3 200
 - 4 680
 - 540
- $40 \times 60 = 2\,400$
 - $30 \times 70 = 2\,100$
 - $30 \times 80 = 2\,400$
 - $60 \times 50 = 3\,000$
 - $70 \times 30 = 2\,100$
 - $20 \times 20 = 400$

AP Book NS6-27

page 68

- 60 (carry 1)
 - 20 (carry 4)
 - 60 (carry 1)
 - 90
 - 50 (carry 3)
- 810
 - 1 200
 - 1 380
 - 1 840
 - 910
 - 1 080
 - 840
 - 1 040
 - 720

- 2 240
 - $30 \times 20 + 30 \times 3 = 600 + 90 = 690$
 - $40 \times 30 + 40 \times 2 = 1\,200 + 80 = 1\,280$

AP Book NS6-28

page 69

- 72
 - 108
 - 198
 - 248
 - 80
 - 75
 - 108
 - 144
 - 204
 - 296
- 1 360
 - 900
 - 4 140
 - 1 680
 - 1 340
- 210; 700
 - 91; 390
 - 128; 1 600
 - 225; 1 350
 - 32; 640
 - 180; 1 350
 - 115; 920
 - 108; 360
 - 184; 2 760
 - 225; 4 500
- 728
 - 3 672
 - 3 268
 - 1 701
 - 1 026
- 1 530
 - 1 216
 - 3 848
 - 1 836
 - 2 784
- 805
 - 5 184

- c) 1 075
- d) 3 654
- e) 1 222
- f) 1 036

AP Book NS6-29
page 71

1. 50, 90, 32, 56, 36, 34, 70, 110, 78
2. a) Teacher to check.
b) Yes they will.
c) Teacher to check.
3. a) 350
b) 8 400
c) 29 000
d) 47 500
e) 36 000
f) 10 000
g) 15 000
h) 853 000
i) 95 200
4. C is the fastest.
Converting to the same units (pages/second):
A – 0.5 pages a second.
30 pages a minute.
B – 1.5 pages a second.
90 pages a minute
C – 2 pages a second.
120 pages a minute
D – 1.33 pages a second.
80 pages a minute
5. a) \$4.80
b) \$6.40 + \$2.50 = \$8.90
c) \$8.50

AP Book NS6-30
page 72

1. a) 19 822
b) 10 787
c) 18 495
2. Cross out: 13, 50, 2, 27
3. 21, 35, 49, 63, 77
4. 11
5. a) 19 346
b) 68 904
c) 88 896

- d) 461 384
- 6. 1 000 cm
- 7. 15 322
- 8. 12
- 9. No (952 minutes)
- 10. a) 2
b) 7
c) 4

AP Book NS6-31
page 73

1. a) Cups; 2; 4
b) Orange; 3; 2
2. a) Books; 4; 8
b) Flowers; 6; 4
c) Apples; 4; 5
d) Trees; 7; 3
3. Teacher to check.

AP Book NS6-32
page 74

1. a) 6
b) 4
2. a) 4 Δ per set
b) 3 Δ per set
3. 3 \square per set
4. a) 3 sets
b) 7 sets
c) 4 sets
5. a) 2 sets of 9
b) 3 sets of 6
6. c) Stickers; 2 sets
d) Pictures; 8 per set
e) Children; 3 sets
f) Flowers; 5 sets
7. a) 7
b) 2
c) 4 sets
d) 5 dots in each set

AP Book NS6-33
page 76

1. a) 4
b) 2
2. a) $15 \div 3 = 5$
b) $10 \div 2 = 5$

3. a) 7
b) 2
c) 4
d) 3
e) 9
f) 9
g) 5
h) 7
i) 9
j) 8
k) 6
l) 5
m) 6
n) 7
o) 5
4. 4
5. 4
6. 4

AP Book NS6-34
page 77

1. No. 4 pancakes on each plate. (1 remainder)
2. a) 3; 1
b) 4; 1
3. a) $13 \div 3 = 4 \text{ R}1$
b) $19 \div 3 = 6 \text{ R}1$
c) $36 \div 5 = 7 \text{ R}1$
d) $33 \div 4 = 8 \text{ R}1$
e) $43 \div 7 = 6 \text{ R}1$
4. $25 \div 8 = 3 \text{ R}1$. Each friend will get 3 apples. There will be one left over
5. 3 groups of 2;
3 groups of 3;
3 groups of 4.
6. 2 groups of 9;
3 groups of 6;
6 groups of 3;
9 groups of 2.

AP Book NS6-35
page 78

1. a) 2; 5; 3
b) 5; 7; 1
c) 4; 9; 5

- d) 5; 8; 8
- 2. a) 1
b) 1
c) 2
d) 2
e) 2
f) 1
g) 1
h) 2
i) 1
j) 1
- 3. a) 4 groups;
2 tens in each group
b) 3 groups;
3 tens in each group
c) 6 group;
1 tens in each group
d) 2 groups;
4 tens in each group
- 4. a) 3 groups;
8 tens;
2 tens in each group;
6 tens altogether
b) 4 groups;
9 tens;
2 tens in each group;
8 tens altogether
- 5. a) 1; 5
b) 2; 6
c) 2; 8
d) 1; 5
e) 1; 9
f) 1; 8
g) 1; 5
h) 4; 8
i) 1; 7
j) 1; 8
k) 2; 6
l) 2; 8
m) 2; 8
n) 1; 5
o) 1; 8
p) 4; 8
q) 1; 6
r) 4; 8
s) 1; 7
t) 2; 6
- 6. a) 1; 7; 2

- b) 2; 6; 1
- c) 3; 6; 0
- d) 1; 4; 3
- e) 1; 6; 2
- f) 1; 7; 1
- g) 1; 7; 1
- h) 2; 6; 2
- i) 1; 5; 2
- j) 1; 4; 1
- 7. a) 1; 5; 25
- b) 1; 7; 17
- c) 2; 8; 13
- d) 3; 6; 13
- e) 3; 6; 14
- f) 1; 8; 17
- g) 1; 4; 36
- h) 3; 9; 04
- i) 1; 7; 21
- j) 1; 9; 04
- 8. a) 18; 5; 44
- b) 21; 8; 07
- c) 37; 6; 15
- d) 17; 3; 21
- e) 14; 5; 22
- f) 12; 7; 15
- g) 47; 8; 15
- h) 12; 8; 16
- i) 30; 9; 02
- j) 46; 8; 13
- 9. a) 16 R1
- b) 13
- c) 28
- d) 25
- e) 32
- f) 17 R3
- g) 16 R4
- h) 12
- i) 12 R1
- j) 10 R5
- k) 11 R3
- l) 19 R1
- m) 10 R4
- n) 13 R3
- o) 16 R3
- 10. $99 \div 8 = 12$ R3. There are 3 left over

- 11. 12 weeks
- 12. 13 rows; 6 books left over
- 13. \$13
- 14. 14 cherries each; Wendy has 4 left over, while Saran has only 1 left over.

AP Book NS6-36
page 83

- 1. Teacher to check.
- 2. a) 157 R1
- b) 278 R1
- c) 145 R5
- d) 124 R3
- 3. b) 94 R2
- c) 33 R2
- d) 52 R3
- 4. a) 38 R1
- b) 85 R1
- c) 53 R1
- d) 63 R1
- e) 73 R1
- f) 305
- g) 1 504 R3
- h) 1 737 R2
- i) 446 R1
- j) 316 R1
- 5. 36 m
- 6. 122 km

AP Book NS6-37
page 85

- 1. a) 300
- b) 30
- c) 3
- 2. a) 300 000
- 30 000
- 3 000
- 300
- b) 270 000
- 27 000
- 2 700
- 270

- 3. The decimal moves one place to the left every time.
- 4. First deal (\$144 vs \$160).
- 5. Teacher to check, answers will vary.
- 6. $58 \div 4 = 14$ R2 so 15 tents will be needed for 58 people
- 7. 13 stickers each; 5 remaining
- 8. 14 weeks or 98 days.
- 9. $75 \div 6 = 12$ R3 so 13 trips are needed to move all the boxes.

AP Book NS6-38
page 86

- 1. 3 120
- 2. 207¢ or \$2. 07
- 3. a) 25
- b) 49
- 4. \$2 016
- 5. Yes (prime number 3); otherwise, no.
- 6. 198
- 7. 2
- 8. 150
- 9. 560
- 10. Ticket cost: \$42; Amount paid with: \$50
- 11. a) The pattern always turns into 6 – 4 – 3. (other than 1 & 2)
- b) 7
- c) The snakes is longer but the pattern eventually turns into 6 – 4 – 3.

AP Book NS6-39
page 87

- 1. a) 0 ←
- b) → 10
- c) 0 ←
- d) → 10
- 2. a) i) 1, 2, 3, 4
- ii) 6, 7, 8, 9
- b) Equal distance between 0 and 10.

- 3. a) 10, ←
- 20, ←
- 30, →
- b) 70 →
- 70 ←
- 80 →
- c) 250 ←
- 260 →
- 270 →
- 4. a) 20
- b) 10
- c) 40
- d) 80
- e) 250
- f) 590
- 5. a) 100, →
- b) 0, ←
- 6. Equal distance to both 0 and 100.
- 7. a) 100
- b) 0
- c) 100
- d) 0
- 8. a) 600
- b) 700
- c) 800
- d) 700
- 9. a) 200
- b) 700
- c) 700
- d) 1 000
- 10. a) 0, ←
- b) 1 000, →
- 11. a) 0
- b) 1 000
- c) 1 000
- 12. a) 3 000, ←
- b) 4 000, →
- 13. a) 4 000
- b) 8 000
- c) 4 000
- d) 2 000

14. If the number in the hundreds place is 500 or greater, you round up to the nearest thousand.
If the number in the hundreds place is 499 or less, you round down to the nearest thousand.

AP Book NS6-40
page 89

- 40
 - 50
 - 20
 - 60
 - 80
 - 80
 - 30
 - 40
 - 90
- 660
 - 270
 - 150
 - 360
 - 420
 - 570
 - 130
 - 470
 - 340
- 300
 - 500
 - 600
 - 300
 - 200
 - 400
 - 500
 - 800
 - 1 000
- 200
 - 300
 - 600
 - 300
 - 900
 - 300
- 5 000
 - 3 000
 - 8 000

- 5 000
 - 3 000
 - 9 000
3. r.d.
 1. r.d.
 6. r.d.
 3. r.u.
 4. r.u.
 1. r.d.
 - r.d. 72 000
 - r.d. 90 000
 - r.d. 84 200
 - r.d. 27 500
 - r.d. 461 270
 - r.d. 140 000
 - 3 290
 - 5 900
 - 10 000
 - 13 980
 - 23 200
 - 1 000 000
 - 400 000

AP Book NS6-41
page 91

- $40 + 20 = 60$
 - $30 + 50 = 80$
 - $60 - 20 = 40$
 - $90 - 60 = 30$
 - $70 + 20 = 90$
 - $90 - 50 = 40$
 - $20 + 30 = 50$
 - $60 + 30 = 90$
 - $80 + 50 = 130$
 - $50 - 20 = 30$
 - $50 + 30 = 80$
 - $80 + 10 = 90$
 - $90 - 40 = 50$
- $400 + 500 = 900$
 - $600 - 200 = 400$
 - $800 - 600 = 200$
 - $700 + 200 = 900$
 - $500 - 200 = 300$
 - $600 + 200 = 800$
 - $800 + 200 = 1000$
 - $700 + 300 = 1000$

- $900 - 500 = 400$
 - $100 + 600 = 700$
 - $500 + 300 = 800$
- BONUS:
- $5\ 000 - 3\ 000 = 2\ 000$
 - $3\ 000 + 6\ 000 = 9\ 000$
 - $30\ 000 - 20\ 000 = 10\ 000$
 - $3\ 300 + 2\ 000 = 5\ 300$
 - $3\ 600 - 1\ 900 = 1\ 700$
 - $64\ 900 - 42\ 300 = 22\ 600$

AP Book NS6-42
page 92

- 250 000
- 660 000
- 628 320
 - 628 300
 - 628 000
 - 630 000
- $30 \times 80 = 2\ 400$
 - $500 \times 80 = 40\ 000$
 - $300 \times 10 = 3\ 000$
 - $3\ 000 \times 800 = 2\ 400\ 000$
- $6 \times \$5 = \30
 - $5 \times \$3 = \15
 - $8 \times \$8 = \64
- Answers will vary:
 1×999 ; 2×500 ; 3×333 ;
 4×250 ; 5×200 ; 6×167 ;
 7×143 ; 8×125 ; 9×111 .
- Hundreds
- $60 \times 30 = 1800$; so her estimate is a little high
- 2 289
 - Answers will vary.
- Rounding to the nearest hundreds gives a better estimate.

AP Book NS6-43
page 93

- Predictions may vary.
 - D
 - B
 - B
 - E
- Rounding
 - Front-end estimation
 - Round one up and the other down
 - Answers may vary.
None of the listed methods would be overly effective for d).
- Too high
 - Too low
 - Correct
- Teacher to check.
 - 2 550
 - 747
 - 7 884
 - 17 380
 - 1 596
 - 1 700
 - 600
- Answers will vary.
Correct example: 1392
 - Answers will vary.
Correct example: 5874
- Answers will vary.
Correct example: measuring the length of one loonie, then multiplying it by 10 000.
 - Answers will vary.
Correct example: calculating the number of seconds in a day, then multiplying it by 365.

AP Book NS-44
page 94

- 10, 20, 30, 35, 40, 41
 - 25, 50, 55, 60, 61, 62, 63

- c) 25, 50, 60, 70, 71, 72
 - d) 25, 50, 75, 85, 95, 100, 105
 - e) 25, 50, 60, 70, 80, 85, 90, 91, 92, 93, 94
2. a) 37¢
b) 95¢
c) 150¢

BONUS:

- d) 114¢
 - e) 172¢
 - f) 90¢
 - g) 157¢
3. a) 48¢
b) 97¢
c) 86¢
d) 76¢
- BONUS
e) 119¢

AP Book NS-45
page 95

1. a) 2 dimes
b) 2 quarters
c) 3 dimes
d) 1 quarter
2. a) 5¢, 1¢
b) 25¢, 5¢
c) 10¢, 5¢
d) 25¢, 5¢
e) 25¢, 5¢
f) 10¢, 5¢
g) 10¢, 10¢
h) 10¢, 5¢
i) \$1, \$1
j) \$2, \$1
k) \$2, \$2
l) \$2, \$1
m) 25¢, 1¢
n) 1¢, 5¢
3. a) 25¢, 5¢
b) 5¢, 1¢, 1¢, 1¢
c) \$2, \$1
d) \$1, 25¢, 25¢, 10¢, 5¢

4. 1 toonie, 1 loonie,
3 quarters, 5 nickels
or
3 loonies, 2 quarters,
5 dimes
5. Answers will vary.

AP Book NS-46
page 96

1. a) 50¢
b) 50¢
c) 75¢
d) 75¢
e) 25¢
f) 50¢
g) 25¢
h) 0¢
i) 75¢
j) 75¢

2. a)

75¢	9¢	5¢, 1¢, 1¢, 1¢, 1¢
50¢	17¢	10¢, 5¢, 1¢, 1¢
75¢	11¢	10¢, 1¢
75¢	16¢	10¢, 5¢, 1¢

b)

50¢	17¢	10¢, 5¢, 1¢, 1¢
-----	-----	--------------------

c)

75¢	11¢	10¢, 1¢
-----	-----	---------

d)

75¢	16¢	10¢, 5¢, 1¢
-----	-----	----------------

3. a) 25¢, 5¢
b) \$1
c) \$1, 10¢, 5¢
d) \$1, 25¢, 5¢
e) \$2, 25¢
f) \$2, \$2, 25¢, 25¢,
5¢, 1¢, 1¢
4. a) \$1, 25¢, 25¢, 25¢
b) 25¢, 25¢, 10¢, 5¢
c) \$2, \$2, \$2, \$2,
d) \$2, \$2, \$2, \$2, \$1,
25¢, 25¢, 10¢
e) \$2, \$2, \$2, \$2, \$2,
25¢, 25¢, 25¢, 5¢

5.

25¢	sub	10¢	su	5¢	sub	1¢
		b				

b)

2	50	1	60	0	60	4
---	----	---	----	---	----	---

c)

3	75	1	85	0	85	1
---	----	---	----	---	----	---

d)

0	0	2	20	0	20	2
---	---	---	----	---	----	---

e)

1	25	2	45	0	45	3
---	----	---	----	---	----	---

3	75	1	85	1	90	2
---	----	---	----	---	----	---

6. a) \$40
b) \$20
c) \$20
d) \$40
e) \$60

7.

\$50	\$20	\$10	\$5	\$2	\$1
0	1	0	0	0	1
0	1	1	1	0	0
1	0	0	0	1	0
1	1	1	1	1	1
1	0	1	1	0	1

8. a) 25¢, 25¢, 25¢
b) 25¢, 10¢, 10¢, 1¢
c) 25¢, 25¢, 25¢, 5¢, 1¢
d) 25¢, 25¢, 25¢, 10¢,
10¢, 1¢,
9. a) \$50, \$5
b) \$50, \$10, \$5, \$2, \$1
c) \$50, \$20, \$2
d) \$100, \$20, \$5
e) \$50, \$10, \$2, 25¢,
10¢
f) \$20, \$20, \$2, \$1,
10¢, 1¢, 1¢, 1¢
g) \$50, \$5, \$2, 25¢,
25¢, 25¢, 5¢, 1¢
h) \$50, \$20, \$1, 10¢,
1¢, 1¢
i) \$50, \$10, \$2, \$1, 5¢,
1¢
j) \$100, \$50, \$5, \$2,
\$1, 25¢, 25¢
k) \$50, \$20, \$20, \$2,
25¢, 25¢, 25¢, 5¢,
1¢, 1¢, 1¢
l) \$20, \$10, \$5, 10¢,
10¢, 1¢, 1¢, 1¢

AP Book NS-47
page 98

1.

\$1	10¢	1¢	Total
1	7	3	\$1.73
3	7	2	\$3.72
0	3	7	\$0.37
0	0	8	\$0.08

2. a) 7¢ = \$0.07

- b) 30¢ = \$0.30
- c) 90¢ = \$0.90
- d) 3¢ = \$0.03
- e) 11¢ = \$0.11
- f) 25¢ = \$0.25
- g) 20¢ = \$0.20
- h) 175¢ = \$1.75
- i) 80¢ = \$0.80
- j) 1000¢ = \$10.00
- k) 800¢ = \$8.00
- l) 200¢ = \$2.00

3.

\$	¢	Total
\$4	55¢	\$4.55
\$25	40¢	\$25.40
\$20	51¢	\$20.51

4. a) 105¢; \$1.05
b) 106¢; \$1.06
5. a) \$4.37
b) \$0.40
c) \$0.05
d) \$3.48
e) \$3.06
6. a) 239¢
b) 553¢
c) 641¢
d) 6¢
7. a) \$2.96
b) 107¢
c) \$0.70
d) 686¢
e) 640¢
f) 122¢
8. a) Seven dollars and
seventy cents
b) Nine dollars and
eighty-three cents
c) Fifteen dollars and
forty cents
9. a) \$48.51
b) \$55.40
c) \$48.75
10. \$427
11. 25¢, 25¢, 25¢, 5¢, 5¢,
12. \$2, \$2, 25¢, 25¢

13. \$2, \$2, \$2, \$2, \$2, 5¢, 10¢, 10¢ OR \$2, \$2, \$2, \$1, \$1, \$1, \$1, 25¢
14. a) Four dollars and eighty-five cents
 b) Thirteen dollars and twenty-four cents
 c) Eight dollars and twenty-five cents
 d) Four hundred sixty one dollars and ninety-nine cents
 e) Three hundred eighty five dollars and ninety nine cents
 f) Four thousand five hundred twenty three dollars and two cents

AP Book NS-48
page 100

1. a) 6¢
 b) 9¢
 c) 6¢
 d) 7¢
 e) 4¢
 f) 5¢
 g) 2¢
 h) 1¢
 i) 2¢
2. a) 10¢
 b) 60¢
 c) 80¢
 d) 30¢
 e) 90¢
 f) 40¢
 g) 50¢
 h) 70¢
 i) 20¢
3. a) 20¢
 b) 30¢
 c) 80¢
 d) 40¢
 e) 50¢
 f) 70¢
 g) 90¢

- h) 60¢
 i) 40¢
4. a) 80
 b) 60
 c) 50
 d) 30
 e) 60
 f) 10
5. a) 44¢
 b) 17¢
 c) 46¢
 d) 75¢
 e) 53¢
 f) 69¢
6. a) 26¢
 b) 53¢
 c) 64¢
 d) 47¢
 e) 28¢
 f) 65¢
 g) 3¢
 h) 41¢
 i) 11¢
 j) 8¢
7. a) 13¢
 b) 17¢
8. 58¢ change: 25¢, 25¢, 5¢, 1¢, 1¢, 1¢
9. a) \$8.00
 b) \$6.00
 c) \$6.00
 d) \$6.00
 e) \$3.00
 f) \$8.00
10. a) \$23
 b) \$62
 c) \$47
 d) \$36
11. a) \$16
 b) \$75
 c) \$54
 d) \$12
 e) \$48
12. \$72.43
13. a) \$67.15
 b) \$13.73

- c) \$47.81
 d) \$33.57

AP Book NS-49
page 103

1. a) \$9.61
 b) \$78.57
 c) \$39.97
2. a) \$62.36
 b) \$92.55
 c) \$105.75
 d) \$126.44
 e) \$148.48
 f) \$115.53
3. a) \$105.97
 b) \$1 159.82
 c) \$51.75
4. a) \$64.90
 b) Paint set & palette
 c) No. You would need \$31.44.
 d) \$107.23 – \$100.00 = \$7.23 more
 e) Answers will vary.
5. a) Yes: the total would be \$20.75.
 b) Yes: the total would be \$24.95.
6. a) \$12.80
 b) 8
 c) 6
 d) No. It would cost \$100.12.
 e) 3 snowboards
7. a) 100
 b) 200
 c) 500
8. Teacher to check.

AP Book NS-50
page 105

1. a) \$2.33
 b) \$4.42
 c) \$5.66
 d) \$5.01
 e) \$1.61
2. a) \$1.22

- b) \$2.67
 c) \$4.42
 d) \$30.71
 e) \$7.11
 f) \$63.54

3. \$24.50
 4. \$232.79
 5. \$664.20
 6. \$12.99

AP Book NS-51
page 106

1. a) Total = \$51.26
 b) Total = \$74.76
 c) Total = \$78.68
2. a) 70¢
 b) 50¢
 c) 90¢
 d) 30¢
 e) 30¢
 f) 10¢
 g) 90¢
 h) 20¢
 i) 50¢
3. Circle: a), d), e)
4. a) \$7
 b) \$38
 c) \$4
 d) \$100
 e) \$26
 f) \$59
 g) \$365
 h) \$17
 i) \$124
 j) \$128
5. b) Estimate: \$5.00
 Answer: \$4.40
 c) Estimate: \$9.00
 Answer: \$9.18
 d) Estimate: \$7.00
 Answer: \$7.18
 e) Estimate: \$11.00
 Answer: \$11.27
 f) Estimate: \$78.00
 Answer: \$77.99

- g) Estimate: \$92.00
Answer: \$92.69

6. \$40
7. \$5
8. About \$90
9. Rounding to the nearest dollar in this question, would suggest that Hannah and Ali have the same amount of money. This would be inaccurate because Hannah has about 80 cents more.
10. a) Estimate: \$10
Answer: \$8.77
b) Estimate: \$1 900
Answer: \$1 877.95

AP Book NS-52
page 108

1.

M	Tu	W	Th	F
-5	15	5	-10	-20
	20	-10	-15	-10
2. a) Teacher to check.
b) i) 1
ii) 5
iii) 2
c) Three
3. a) - 7 degrees
b) - 5 degrees
c) + 8 degrees
4. a) Uranus
b) About 100 degrees
c) About 580 degrees
5. a) Dog
b) 5 000 years
c) 4 000 years
d) Teacher to check, answers will vary.
6. Mackerel: -200m
Gulper: -1 000 m
Gulper live 800 meters below the Mackerel
7. Five
8. Because they are closer to zero.

AP Book NS-53
page 110

1. a)

nickels	pennies
0	17
1	12
2	7
3	2
- b)

dimes	nickels
0	9
1	7
2	5
3	3
4	1
- c)

nickels	pennies
0	23
1	18
2	13
3	8
4	3
- d)

dimes	pennies
0	32
1	22
2	12
3	2
- e)

quarters	nickels
0	13
1	8
2	3
- f)

quarters	nickels
0	17
1	12
2	7
3	2

2.

quarters	nickels
0	12
1	7
2	2

He stops at 2 quarters because 3 quarters is 75¢ (and that's larger than 60¢).
3. a)

dimes	nickels
0	18
1	16
2	14
3	12
4	10
5	8
6	6
7	4
8	2
9	0
- b)

quarters	dimes
1	10
3	5
5	0
4. a)

1 st no.	2 nd no.
1	6
2	3
3	2
- b)

1 st no.	2 nd no.
1	8
2	4
3	-
4	2
5.

quarters	dimes
0	7
1	-
2	2
6. a)

quarters	dimes
0	8
1	-
2	3

- b)

quarters	dimes
0	-
1	8
2	-
3	3
4	-
7.

Width	Length
1	5
2	4
3	3
4	2
5	1
8. a)

1 st no.	2 nd no.
1	12
2	6
3	4
4	3
6	2
12	1
- b)

1 st no.	2 nd no.
1	14
2	7
7	2
14	1
- c)

1 st no.	2 nd no.
1	20
2	10
4	5
5	4
10	2
20	1
- d)

1 st no.	2 nd no.
1	24
2	12
3	8
4	6
6	4
8	3
12	2
24	1