






# NEW WAVE

## NUMBER AND ALGEBRA (YEAR 3)

### STUDENT WORKBOOK ANSWERS

#### N&PV – 1

#### Page 2 A battle between odd and even

KEY		orange
		yellow
		pink
		purple stripes
		dark green stripes

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80

- 2, 4, 6, 8, 10, 12, 14, 16, 18
- yellow = 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50  
pink = 52, 54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76, 78, 80
- 52, 54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76, 78, 80
- 33, 35, 37, 39, 41, 43, 45, 47, 49, 51, 53, 55, 57, 59, 61
- 63, 65, 67, 69, 71, 73, 75, 77, 79
- 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29

#### Page 3 Odds make it count

- 33, 35, 37, 39, 41, 43, 45, 47, 49, 51, 53, 55
- 46, 48, 50, 52, 54, 56, 58, 60, 62, 64, 66, 68
- 79, 81, 83, 85, 87, 89, 91, 93, 95, 97, 99, 101
- 68, 70, 72, 74, 76, 78, 80, 82, 84, 86, 88, 90
- 101, 103, 105, 107, 109, 111, 113, 115, 117, 119, 121, 123
- 47, 49, 51, 53, 55, 57, 59, 61, 63, 65, 67, 69
- 112, 114, 116, 118, 120, 122, 124, 126, 128, 130, 132, 134
- 63, 65, 67, 69, 71, 73, 75, 77, 79, 81, 83, 85
- 88, 90, 92, 94, 96, 98, 100, 102, 104, 106, 108, 110

#### Page 4 Count and decide

- |            |           |
|------------|-----------|
| 1. 9 – odd | 16 – even |
| 14 – even  | 12 – even |
| 15 – odd   | 18 – even |
| 6 – even   | 16 – even |
| 14 – even  | 21 – odd  |
| 26 – even  | 24 – even |

#### Page 5 Decide and draw

- |                     |                  |
|---------------------|------------------|
| 1. 6 shoes – even   | 12 eggs – even   |
| 24 tentacles – even | 6 babies – even  |
| 18 drinks – even    | 30 drinks – even |
| 20 sides – even     | 9 sides – odd    |
| 25 fingers – odd    | 25 sides – odd   |

#### Page 6 The Australian Grand Prix

- Odd – 31, 75, 81, 87, 93, 105, 109, 115, 117, 137, 151, 167, 213, 219, 231, 239, 251
- Even – 48, 52, 58, 92, 98, 100, 122, 124, 136, 142, 162, 180, 182, 192, 206, 210, 228, 314
- Teacher check

#### Page 7 Circle like a shark

- 33, 35, 37, 39, 41, 43, 45, 47, 49, 51, 53, 55, 57, 59, 61, 63, 65, 67
- 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50
- 64, 66, 68, 70, 72, 74, 76, 78, 80, 82, 84, 86, 88, 90, 92, 94, 96, 98
- 73, 75, 77, 79, 81, 83, 85, 87, 89, 91, 93, 95, 97, 99, 101, 103, 105
- 113, 115, 117, 119, 121, 123, 125, 127, 129, 131, 133, 135, 137, 139, 141, 143, 145, 147
- 112, 114, 116, 118, 120, 122, 124, 126, 128, 130, 132, 134, 136, 138, 140, 142, 144, 146, 148, 150

#### Page 8 Odd and even street

- (a) 149 (b) 148
- 

112	114	116	118	120	122	124	126	128	130	132	134	136	138	140	142	144	146	148	
											Orange				Purple				
113	115	117	119	121	123	125	127	129	131	133	135	137	139	141	143	145	147	149	
					Green					Grey									

- (a) 1117 (b) 1118  
(c) 1111 (d) 1112
- 

1082	1084	1086	1088	1090	1092	1094	1096	1098	1100	1102	1104	1106	1108	1110	1112	1114	1116	1118	
			Green			Orange					Purple								
1081	1083	1085	1087	1089	1091	1093	1095	1097	1099	1101	1103	1105	1107	1109	1111	1113	1115	1117	
										Grey									

**Page 9 Roll and create**

Teacher check

**Page 10 Big and small – 1**

1.

Digits provided	Largest	Smallest
2, 1, 6, 5	6521	1256
4, 2, 7, 9	9742	2479
9, 0, 2, 7	9720	0279
1, 5, 6, 1	6511	1156
2, 4, 9, 5	9542	2459
9, 3, 7, 8	9873	3789
5, 5, 0, 1	5510	0155
3, 7, 1, 9	9731	1379
8, 8, 2, 9	9882	2889
3, 6, 2, 7	7632	2367

2.

Digits provided	Largest	Smallest
3, 5, 1, 9	9531✓	3159✗
2, 7, 1, 8	8271✗	1278✓
3, 6, 9, 2	9632✓	3269✗
1, 5, 7, 2	7521✓	1257✓
3, 9, 5, 8	5893✗	3589✓
4, 7, 9, 1	4971✗	1479✓
5, 5, 0, 3	5530✓	3055✗
6, 1, 1, 9	9116✗	1169✓
5, 7, 9, 2	9725✗	5279✗
6, 5, 4, 8	8645✗	4568✓

**Page 11 Big and small – 2**

1.

Digits provided	Largest	Smallest
3, 8, 9, 7	9873	3789
4, 4, 7, 6	7644	4467
2, 5, 2, 0	5220	0225
1, 6, 8, 7	8761	1678
4, 6, 9, 6	9664	4669
3, 3, 7, 1	7331	1337
4, 7, 8, 7	8774	4778
1, 1, 0, 9	9110	0119
5, 0, 7, 8	8750	0578
3, 4, 7, 9	9743	3479

2.

Digits provided	Largest	Smallest
7, 2, 8, 3	8273✗	3278✓
6, 9, 3, 9	9936✗	3699✓
1, 1, 8, 7	8711✓	1187✗
3, 5, 6, 6	6653✓	3566✓
9, 3, 5, 1	9513✗	1359✓
8, 3, 9, 2	9328✗	2398✗
4, 7, 0, 8	8074✗	0478✓
5, 1, 2, 9	9521✓	1259✓
4, 5, 9, 6	9645✗	5469✗
9, 1, 1, 0	9011✗	1019✗

**Page 12 Big numbers, but are they odd?**

1.

Digits provided	Odd-numbered digits	Even-numbered digit	Odd or even?
1 693 945	5	2	odd
2 394 884	2	5	even
4 938 173	5	2	odd
9 583 772	5	2	even
5 922 847	3	4	odd
2 394 842	2	5	even
1 389 493	5	2	odd
3 884 663	2	5	odd
3 746 460	2	5	even
2 774 390	4	3	even
8 499 227	3	4	odd
7 882 092	2	5	even
3 882 116	3	4	even
2 936 884	2	5	even

**N&PV – 2****Page 13 Expand these numbers**

- 1.
- |                       |                       |
|-----------------------|-----------------------|
| $8000 + 500 + 60 + 2$ | $6000 + 700 + 70$     |
| $7000 + 100 + 20 + 3$ | $8000 + 200 + 20 + 3$ |
| $9000 + 900 + 70 + 5$ | $9000 + 900 + 80 + 7$ |
| $9000 + 70 + 3$       | $1000 + 200 + 30 + 4$ |
| $1000 + 700 + 70 + 6$ | $3000 + 40$           |
| $3000 + 300 + 40 + 4$ | $8000 + 900 + 70 + 1$ |
| $9000 + 700 + 30 + 4$ | $5000 + 500 + 70 + 8$ |
| $1000 + 90 + 8$       | $6000 + 700 + 80 + 2$ |
| $3000 + 900 + 40 + 5$ |                       |

**Page 14 Expand these, but watch the zeros**

- 1.
- $6000 + 700 + 70$
  - $1000 + 80 + 3$
  - $2000 + 90 + 9$
  - $6000 + 700 + 3$
  - $5000 + 100 + 1$
  - $4000 + 80 + 7$
  - $3000 + 50 + 5$
  - $800 + 70 + 7$
  - $900 + 10 + 2$
  - $4000 + 900 + 2$
  - $6000 + 600 + 6$
  - $2000 + 900 + 10$
  - $3000 + 400 + 40$
  - $7000 + 30 + 3$
  - $2000 + 90 + 1$
  - $3000 + 700 + 6$
  - $2000 + 900 + 8$

**Page 15 Match these numbers**

- 1943 – One thousand, nine hundred and forty-three  
7034 – Seven thousand and thirty-four  
8181 – Eight thousand, one hundred and eighty-one  
6069 – Six thousand, and sixty-nine  
1439 – One thousand, four hundred and thirty-nine  
8819 – Eight thousand, eight hundred and nineteen  
2354 – Two thousand, three hundred and fifty-four  
2543 – Two thousand, five hundred and forty-three  
8118 – Eight thousand, one hundred and eighteen  
3199 – Three thousand, one hundred and ninety-nine  
6096 – Six thousand, and ninety-six  
5506 – Five thousand, five hundred and six  
3919 – Three thousand, nine hundred and nineteen  
2544 – Two thousand, five hundred and forty-four  
7043 – Seven thousand, and forty-three  
1349 – One thousand, three hundred and forty-nine  
2445 – Two thousand, four hundred and forty-five  
8991 – Eight thousand, nine hundred and ninety-one  
8811 – Eight thousand, eight hundred and eleven  
5605 – Five thousand, six hundred and five
- 11, 19, 8, 16, 12, 6, 13, 20, 14, 9, 4, 1, 17, 3, 2, 7, 10, 15, 18, 5

**Page 16 Order these close numbers**

- (a) 100, 101, 110, 111, 121  
(b) 200, 202, 210, 212, 222  
(c) 303, 310, 311, 313, 323  
(d) 400, 404, 414, 420, 424  
(e) 500, 501, 505, 511, 515  
(f) 600, 606, 611, 616, 620
- (a)–(f) Teacher checks numbers have been placed correctly on number lines.

**Page 17 Order these numbers**

- (a) 4010, 4050, 4080, 4100, 4110  
(b) 6050, 6090, 6250, 6400, 6550  
(c) 7070, 7100, 7370, 7700, 7770  
(d) 5010, 5100, 5150, 5500, 5550  
(e) 3050, 3100, 3300, 3400, 3450  
(f) 9050, 9100, 9350, 9500, 9800
- (a)–(f) Teacher checks numbers have been placed correctly on number lines.

**Page 18 Words and numbers**

- (a) Eight thousand, seven hundred and ninety-one  
(b) Three thousand, and sixty-nine  
(c) Two thousand, nine hundred and forty-seven  
(d) Eight thousand, six hundred and one  
(e) Two thousand, seven hundred and sixteen  
(f) Nine thousand, eight hundred and seven  
(g) Four thousand, eight hundred and seventeen  
(h) Eight thousand, eight hundred and ninety-one

- (a) 2313, 2413, 2513, 2613, 2713, 2813  
(b) 6870, 6970, 7070, 7170, 7270, 7370  
(c) 1374, 1474, 1574, 1674, 1774, 1874  
(d) 8053, 8153, 8253, 8353, 8453, 8553  
(e) 4678, 4778, 4878, 4978, 5078, 5178  
(f) 8076, 8176, 8276, 8376, 8476, 8576

**Page 19 Oh dear, these are mixed up**

- (a) 2319 (b) 4852  
(c) 6511 (d) 8209  
(e) 9028 (f) 9191  
(g) 5946 (h) 1324  
(i) 7036 (j) 3980  
(k) 6207 (l) 5225  
(m) 3773 (n) 8585
- 1324, 2319, 3773, 3980, 4852, 5225, 5946, 6207, 6511, 7036, 8209, 8585, 9028, 9191

**Page 20 One less – and one more**

- |            |            |
|------------|------------|
| 1668, 1670 | 7010, 7012 |
| 8098, 8100 | 1598, 1600 |
| 2668, 2670 | 1100, 1102 |
| 1000, 1002 | 4001, 4003 |
| 3000, 3002 | 9010, 9012 |
| 4079, 4081 | 5100, 5102 |
| 8106, 8108 | 8098, 8100 |
| 3908, 3910 | 5018, 5020 |
| 2002, 2004 | 2948, 2950 |
| 5108, 5110 | 8700, 8702 |

**N&PV – 3****Page 21 What's up with 5?**

Number	Value of 5	Number	Value of 5
3568	500 or 5 hundreds	4566	500 or 5 hundreds
7582	500 or 5 hundreds	8534	500 or 5 hundreds
456	50 or 5 tens	751	50 or 5 tens
513	500 or 5 hundreds	579	500 or 5 hundreds
9533	500 or 5 hundreds	1560	500 or 5 hundreds
5804	5000 or 5 thousands	5007	5000 or 5 thousands
3560	500 or 5 hundreds	8356	50 or 5 tens
2315	5 or 5 units	9935	5 or 5 units

Extended form	Number	Extended form	Number
5000 + 400 + 20 + 9	5429	4000 + 500 + 70 + 7	4577
2000 + 100 + 50 + 6	2156	5000 + 300 + 30	5330
7000 + 600 + 50 + 8	7658	2000 + 50 + 4	2054
3000 + 500 + 10 + 9	3519	3000 + 5	3005
4000 + 900 + 20 + 5	4925	1000 + 500 + 8	1508
5000 + 100 + 70 + 1	5171	9000 + 500 + 9	9509

Extended form	Number	Extended form	Number
$20 + 500 + 3 + 1000$	1523	$9 + 3000 + 50 + 300$	3359
$7 + 50 + 600 + 4000$	4657	$1000 + 6 + 20 + 500$	1526
$100 + 5 + 9000 + 20$	9125	$700 + 70 + 5 + 9000$	9775
$600 + 2 + 50 + 5000$	6652	$50 + 8000 + 6 + 100$	8156
$500 + 8 + 90 + 5000$	5598	$800 + 40 + 1000 + 5$	1845
$500 + 4 + 60 + 1000$	1564	$400 + 5000 + 7 + 90$	5497

**Page 22 Place value using wishball**

Teacher check

**Page 23 A big day at school**

- 45                      2. 260
- 195                    4. 80
- 70                      6. 92
- 75                      8. 203

**Page 24 A big day at the beach**

- 78                      2. 330
- 152                    4. 224
- 91                      6. 216
- 108                    8. 324

**Page 25 Can you walk a golf course?**

- 4491 m              2. 2159 m
- 681 m                4. 1769 m
- 3222 m              6. 617 m
- 2777 m              8. 787 m

**N&PV - 4**

**Page 26 Four sums from three numbers!**

- $4 + 6 = 10, 6 + 4 = 10, 10 - 6 = 4, 10 - 4 = 6$
- $9 + 6 = 15, 6 + 9 = 15, 15 - 9 = 6, 15 - 6 = 9$
- $7 + 8 = 15, 8 + 7 = 15, 15 - 7 = 8, 15 - 8 = 7$
- $19 + 5 = 24, 5 + 19 = 24, 24 - 5 = 19, 24 - 19 = 5$
- $11 + 12 = 23, 12 + 11 = 23, 23 - 11 = 12, 23 - 12 = 11$
- $8 + 4 = 12, 4 + 8 = 12, 12 - 8 = 4, 12 - 4 = 8$

**Page 27 These numbers are the best of friends**

- A 9, 9, 5, 5            Total is 28

B 9, 8, 8, 9            Total is 34

C 11, 7, 7, 11        Total is 36

D 12, 7, 7, 12        Total is 38

E 6, 6, 5, 5            Total is 22

F 4, 9, 9, 4            Total is 24

G 5, 11, 11, 5        Total is 32

H 8, 7, 7, 8            Total is 30

I 12, 12, 9, 9        Total is 42
- I, D, C

**Page 28 Number sentences**

- (a)  $4 + 4 + 4 + 6 = 18$

(b)  $6 + 4 + 4 + 4 = 18$

(c)  $4 + 6 + 4 + 4 = 18$

(d)  $4 + 4 + 6 + 4 = 18$
- (a)  $18 - 4 - 4 - 4 - 6 = 0$

(b)  $18 - 6 - 4 - 4 - 4 = 0$

(c)  $18 - 4 - 6 - 4 - 4 = 0$

(d)  $18 - 4 - 4 - 6 - 4 = 0$
- (a)  $7 + 4 + 4 + 4 + 4 = 23$

(b)  $4 + 7 + 4 + 4 + 4 = 23$

(c)  $4 + 4 + 7 + 4 + 4 = 23$

(d)  $4 + 4 + 4 + 7 + 4 = 23$
- (a)  $23 - 4 - 4 - 4 - 4 - 7 = 0$

(b)  $23 - 4 - 4 - 7 - 4 - 4 = 0$

(c)  $23 - 4 - 7 - 4 - 4 - 4 = 0$

(d)  $23 - 7 - 4 - 4 - 4 - 4 = 0$

**Page 29 Bigger numbers but still connected**

- A 12, 12, 28, 28    Total is 80

B 18, 33, 33, 18    Total is 102

C 33, 29, 29, 33    Total is 124

D 18, 44, 44, 18    Total is 124

E 16, 19, 19, 16    Total is 70

F 23, 28, 28, 23    Total is 120

G 45, 17, 17, 45    Total is 124

H 39, 13, 12, 39    Total is 104

I 46, 16, 16, 46    Total is 124
- C, D, G, I

**N&PV - 5**

**Page 30 Split the numbers**

- (b)  $60 + 9 + 30 + 3 = 102$

(c)  $20 + 1 + 50 + 3 = 74$

(d)  $80 + 7 + 10 + 6 = 103$

(e)  $30 + 6 + 10 + 9 = 55$

(f)  $80 + 6 + 30 + 5 = 121$

(g)  $50 + 5 + 30 + 7 = 92$

(h)  $20 + 9 + 70 + 4 = 103$

(i)  $10 + 8 + 60 + 7 = 85$

(j)  $30 + 3 + 80 + 6 = 119$

(k)  $20 + 3 + 40 + 2 = 65$

(l)  $40 + 6 + 90 + 9 = 145$

(m)  $50 + 9 + 30 + 7 = 96$

(n)  $10 + 7 + 40 + 8 = 65$

**Page 31 Make the second line**

1. (b)  $20 + 17 = 37$  (c)  $20 + 20 = 40$   
 (d)  $30 + 29 = 59$  (e)  $14 + 11 = 25$   
 (f)  $20 + 20 = 40$  (g)  $20 + 12 = 32$   
 (h)  $30 + 30 = 60$  (i)  $22 + 28 = 50$   
 (j)  $20 + 44 = 64$  (k)  $20 + 30 = 50$   
 (l)  $16 + 32 = 48$  (m)  $24 + 7 = 31$   
 (n)  $20 + 27 = 47$

**Page 32 My knowledge of subtraction**

1. (a)  $53 + (20 - 2)$  (h)  $76 + (30 - 3)$   
 $= 73 - 2$   $= 106 - 3$   
 $= 71$   $= 103$   
 (b)  $39 + (20 - 2)$  (i)  $136 + (40 - 1)$   
 $= 59 - 2$   $= 176 - 1$   
 $= 57$   $= 175$   
 (c)  $48 + (20 - 3)$  (j)  $112 + (30 - 2)$   
 $= 68 - 3$   $= 142 - 2$   
 $= 65$   $= 140$   
 (d)  $73 + (30 - 2)$  (k)  $144 + (50 - 2)$   
 $= 103 - 2$   $= 194 - 2$   
 $= 101$   $= 192$   
 (e)  $83 + (30 - 1)$  (l)  $116 + (40 - 2)$   
 $= 113 - 1$   $= 156 - 2$   
 $= 112$   $= 154$   
 (f)  $62 + (30 - 1)$  (m)  $151 + (30 - 3)$   
 $= 92 - 1$   $= 181 - 3$   
 $= 91$   $= 178$   
 (g)  $94 + (40 - 3)$   
 $= 134 - 3$   
 $= 131$

**Page 33 Take time to take on 20**

1.

15	15	11
11	18	14
13	25	3
12	20	8
12	21	15
16	19	2
3	25	6
10	17	21
13	20	8
5	22	18
10	14	9
17	17	11
14	17	4
7	22	6
13	21	8
8	25	4
2	15	12
13	18	7
13	20	15
18	24	16

**N&PV - 6**

**Page 34 Mistakes on this grid**

1.

x	0	1	2	3	5	10
1	0	0	0	0	0	0
2	0	1	5	6	11	22
3	0	3	6	8	15	30
4	0	4	9	10	20	40
5	0	5	10	20	25	40
6	0	6	12	16	30	60
7	0	7	16	21	40	70
8	0	9	16	27	40	85
9	8	9	18	27	45	81
10	10	10	20	30	50	109

2. Yes, 19 errors

**Page 35 More mistakes on this grid**

x	0	1	2	3	5	10
1	1	0	0	0	0	0
2	0	3	4	6	12	22
3	0	3	7	9	15	30
4	0	4	8	14	20	40
5	0	5	10	15	35	40
6	0	6	12	18	30	65
7	0	8	14	24	35	70
8	1	8	18	24	44	80
9	0	11	18	29	45	90
10	0	10	22	30	60	100

**Page 36 A different kind of speed test**

Speed test 1	Speed test 2	Speed test 3
10	30	90
9	24	30
7	30	30
9	12	18
30	9	80
70	50	15
15	3	24
24	40	21
27	27	12
12	24	9
0	21	27
30	10	90
9	15	100
18	30	0
21	18	12
24	80	40
3	60	9
30	0	110

Speed test 1	Speed test 2	Speed test 3
6	5	5
3	2	5
5	10	5
3	5	3
5	6	4
3	5	3
10	3	2
5	3	3
5	3	3
5	5	5
3	5	3
3	5	2
5	10	3
5	3	3
3	3	3
3	5	5
3	6	10
5	2	5

12 ÷ 2 = 6	3 × 4 = 12	7 × 5 = 35	16 ÷ 2 = 8	21 ÷ 3 = 7	9 ÷ 3 = 3	5 × 5 = 25	20 ÷ 5 = 4	18 ÷ 3 = 6	7 × 3 = 21	7 × 5 = 35	3 × 4 = 12	5 × 5 = 25
5 × 5 = 25	21 ÷ 7 = 3	24 ÷ 3 = 8	7 × 2 = 14	45 ÷ 5 = 9	24 ÷ 3 = 8	30 ÷ 5 = 6	45 ÷ 5 = 9	7 × 5 = 35	35 ÷ 5 = 7	27 ÷ 3 = 9	24 ÷ 4 = 6	5 × 3 = 15
6 × 2 = 12	9 × 5 = 45	4 × 2 = 8	8 × 3 = 24	10 ÷ 2 = 5	4 × 5 = 20	27 ÷ 3 = 9	9 × 3 = 27	24 ÷ 2 = 12	9 × 4 = 36	6 × 2 = 12	6 × 10 = 60	1 × 3 = 3
3 × 5 = 15	8 × 10 = 80	4 × 5 = 20	7 × 5 = 35	50 ÷ 5 = 10	6 × 3 = 18	5 × 3 = 15	4 × 2 = 8	8 × 5 = 40	5 × 5 = 25	2 × 3 = 6	6 × 2 = 12	2 × 4 = 8
9 × 2 = 18	6 × 3 = 18	2 × 5 = 10	9 × 2 = 18	25 ÷ 5 = 5	12 ÷ 3 = 4	1 × 5 = 5	7 × 5 = 35	8 × 3 = 24	14 ÷ 2 = 7	4 × 4 = 16	3 × 4 = 12	3 × 10 = 30
7 × 10 = 70	3 × 3 = 9	27 ÷ 3 = 9	10 × 5 = 50	5 × 5 = 25	24 ÷ 3 = 8	8 × 5 = 40	15 ÷ 5 = 3	8 × 2 = 16	40 ÷ 5 = 8	12 ÷ 2 = 6	0 × 5 = 0	3 × 4 = 12
6 × 5 = 30	35 ÷ 5 = 7	10 ÷ 2 = 5	8 × 5 = 40	12 ÷ 2 = 6	24 ÷ 2 = 12	21 ÷ 3 = 7	0 × 5 = 0	33 ÷ 3 = 11	14 ÷ 2 = 7	14 ÷ 2 = 7	40 ÷ 5 = 8	4 × 3 = 12
4 × 4 = 16	16 ÷ 2 = 8	12 ÷ 3 = 4	16 ÷ 2 = 8	16 ÷ 2 = 8	7 × 5 = 35	7 × 5 = 35	16 ÷ 2 = 8	7 × 5 = 35	16 ÷ 2 = 8	3 × 5 = 15	45 ÷ 5 = 9	8 × 5 = 40
5 × 5 = 25	7 × 5 = 35	9 × 3 = 27	15 ÷ 3 = 5	12 ÷ 3 = 4	7 × 5 = 35	3 × 3 = 9	24 ÷ 3 = 8	3 × 4 = 12	6 × 5 = 30	21 ÷ 3 = 7	27 ÷ 3 = 9	7 × 2 = 14
3 × 4 = 12	15 ÷ 3 = 5	21 ÷ 3 = 7	20 ÷ 5 = 4	9 × 5 = 45	18 ÷ 3 = 6	15 ÷ 3 = 5	7 × 3 = 21	5 × 5 = 25	20 ÷ 4 = 5	3 × 4 = 12	25 ÷ 5 = 5	2 × 5 = 10

4 × 4 = 16	7 × 5 = 35	0 × 5 = 0	0 × 3 = 0	5 × 5 = 25
4 × 3 = 12	1 × 5 = 5	6 × 3 = 18	3 × 10 = 30	9 × 3 = 27
0 × 10 = 0	9 × 11 = 99	3 × 5 = 15	7 × 5 = 35	9 × 5 = 45
7 × 2 = 14	8 × 11 = 88	8 × 2 = 16	5 × 4 = 20	5 × 10 = 50
3 × 10 = 30	7 × 3 = 21	4 × 3 = 12	10 × 2 = 20	9 × 5 = 45
3 × 4 = 12	4 × 5 = 20	8 × 5 = 40	4 × 4 = 16	5 × 11 = 55
5 × 3 = 15	2 × 5 = 10	8 × 3 = 24	3 × 5 = 15	1 × 3 = 3
9 × 2 = 18	10 × 10 = 100	7 × 2 = 14	1 × 3 = 3	10 × 2 = 20
9 × 5 = 45	2 × 10 = 20	8 × 5 = 40	9 × 10 = 90	2 × 5 = 10
6 × 10 = 60	6 × 5 = 30	5 × 5 = 25	8 × 5 = 40	4 × 5 = 20
4 × 2 = 8	6 × 3 = 18	9 × 5 = 45	3 × 2 = 6	1 × 10 = 10
10 × 1 = 10	0 × 3 = 0	5 × 3 = 15	2 × 3 = 6	3 × 5 = 15
2 × 5 = 10	0 × 8 = 0	7 × 3 = 21	10 × 5 = 50	4 × 3 = 12
10 × 3 = 30	9 × 10 = 90	7 × 10 = 70	0 × 10 = 0	2 × 3 = 6
6 × 2 = 12	6 × 4 = 24	3 × 3 = 9	5 × 2 = 10	8 × 3 = 24
7 × 3 = 21	3 × 5 = 15	6 × 3 = 18	3 × 3 = 9	8 × 10 = 80
10 × 3 = 30	7 × 5 = 35	7 × 5 = 35	5 × 2 = 10	7 × 2 = 14
6 × 5 = 30	2 × 2 = 4	6 × 2 = 12	1 × 5 = 5	8 × 5 = 40
4 × 10 = 40	3 × 3 = 9	7 × 10 = 70	5 × 10 = 50	9 × 3 = 27
10 × 5 = 50	7 × 3 = 21	9 × 5 = 45	6 × 3 = 18	1 × 2 = 2
6 × 11 = 66	5 × 5 = 25	0 × 5 = 0	4 × 5 = 20	5 × 5 = 25

- 64
- 153
- 72
- 172
- 195
- 945 mins = 15 hours 45 mins
- 126

- 126
- 184
- 156
- 152
- 374
- 609
- 132

- (a)  $3 \times (50 + 8) = 3 \times 50 + 3 \times 8 = 150 + 24 = 174$   
 (b)  $4 \times (60 + 3) = 4 \times 60 + 4 \times 3 = 240 + 12 = 252$   
 (c)  $5 \times (40 + 9) = 5 \times 40 + 5 \times 9 = 200 + 45 = 245$   
 (d)  $6 \times (50 + 7) = 6 \times 50 + 6 \times 7 = 300 + 42 = 342$   
 (e)  $3 \times (90 + 2) = 3 \times 90 + 3 \times 2 = 270 + 6 = 276$   
 (f)  $4 \times (30 + 9) = 4 \times 30 + 4 \times 9 = 120 + 36 = 156$

**Page 43 More grids to use!**

1. (a) **3 x 94**

		Tens		Ones
x		9	4	270
ones	3	3 x 90	3 x 4	+ 12
		= 270	= 12	282

(b) **5 x 57**

		Tens		Ones
x		5	7	250
ones	5	5 x 50	5 x 7	+ 35
		= 250	= 35	285

(c) **4 x 39**

		Tens		Ones
x		3	9	120
ones	4	4 x 30	4 x 9	+ 36
		= 120	= 36	156

(d) **5 x 93**

		Tens		Ones
x		9	3	450
ones	5	5 x 90	5 x 3	+ 15
		= 450	= 15	465

**Page 44 Calculator or pen?**

1. (a) 152
- (b) 135
- (c) 219
- (d) 336
- (e) 460
- (f) 511

**Page 45 We better face the facts – again**

A	B	C	D	E
9	5	6	5	7
20	6	6	7	9
3	9	6	3	5
6	4	12	10	7
4	5	8	8	9
7	2	9	6	8
10	9	6	8	8
13	10	3	7	10
10	7	6	9	1
3	9	9	10	9
7	4	9	7	5
9	6	4	5	8
10	11	13	9	7
6	10	9	6	14
3	4	6	11	3
17	17	4	5	7
9	7	8	5	4
16	5	5	9	7
8	14	17	3	9
5	9	11	7	7

**F&D – 1**

**Page 46 Colour these fractions**

Teacher check

**Page 47 I just want my fair share**

Teacher check

**Page 48 Plot these fractions**

Teacher check

**Page 49 What fraction is coloured here?**

1. (a)  $5, \frac{2}{7}$
- (b)  $3, \frac{1}{4}$
- (c)  $1, \frac{4}{5}$
- (d)  $3, \frac{1}{2}$
- (e)  $7, 0$
- (f)  $1, \frac{4}{5}$
- (g)  $5, 0$
- (h)  $3, \frac{1}{2}$
- (i)  $2, \frac{3}{5}$
- (j)  $5, \frac{1}{6}$
- (k)  $2, \frac{2}{3}$

**M&FM – 1**

**Page 50 11 ways to make \$1.10?**

Teacher check

**Page 51 Can you read my mind? – I have 3 coins**

1. Trick 1 – \$2, \$2, 20c
2. Trick 2 – \$1, 50c, 5c
3. Trick 3 – \$2, \$2, \$2
4. Trick 4 – \$2, 10c, 5c
5. Trick 5 – 50c, 20c, 20c
6. Trick 6 – \$1, 50c, 50c
7. Trick 7 – \$1, 10c, 5c
8. Trick 8 – 50c, 50c, 50c
9. Trick 9 – \$2, 50c, 5c
10. Trick 10 – \$1, 10c, 10c or 50c, 50c, 20c
11. Trick 11 – 20c, 20c, 20c or 50c, 5c, 5c
12. Trick 12 – \$1, 50c, 20c
13. Trick 13 – \$2, \$1, 10c
14. Trick 14 – \$2, 20c, 5c

**Page 52 Change please!**

1. (a) Change from \$5:  
\$1.55, \$3.05, \$0.95, \$2.65, \$4.15  
\$0.30, \$3.40, \$2.60, \$1.70, \$4.10
- (b) Change from \$10:  
\$5.45, \$3.95, \$6.45, \$1.65, \$8.05  
\$5.50, \$2.80, \$3.60, \$1.20, \$0.90
- (c) Change from \$20:  
\$8.50, \$16.50, \$12.50, \$2.40, \$5.60  
\$11.50, \$3.50, \$17.50, \$2.90, \$16.30

- (d) Change from \$50:  
\$39.50, \$27.50, \$10.50, \$5.50, \$45.50  
\$24, \$32, \$5, \$17, \$39

**Page 53 Dollars and cents**

1.

Dollars	cents	Dollars	cents
\$1.21	121	\$11.01	1101c
\$0.66	66c	\$2.88	288
\$4.07	407	\$4.04	404c
\$1.33	133c	\$7.07	707
\$2.10	210	\$5.51	551c
\$2.02	202c	\$13.02	1302
\$5.09	509	\$9.08	908c
\$3.19	319c	\$4.07	407
\$1.89	189	\$2.44	244c
\$4.77	477c	\$11.55	1155
\$3.13	313	\$3.30	330c
\$8.01	801c	\$9.19	919
\$4.91	491	\$4.17	417c

**Page 54 Four coins - can you guess?**

- Trick 1 \$1, 20c, 10c, 5c  
Trick 2 \$2, 50c, 10c, 10c  
Trick 3 \$2, \$1, 50c, 20c  
Trick 4 50c, 50c, 50c, 20c  
Trick 5 \$2, \$2, \$2, 5c  
Trick 6 \$1, 20c, 20c, 5c  
Trick 7 \$2, 10c, 10c, 10c  
Trick 8 50c, 50c, 50c, 10c  
Trick 9 \$2, \$2, \$1, \$1  
Trick 10 50c, 50c, 50c, 5c
- Answers will vary. Teacher check

**Page 55 How many coins in a note?**

- 20 x 50c coins
- 10 x 50c coins
- 15 x \$2 coins
- 20 x 50c coins – 5 x \$2 coins

**Page 56 I need change please**

- (a) Change from \$4:  
\$0.85, \$1.45, \$1.95, \$0.65, \$0.15  
\$1.30, \$0.35, \$1.10, \$0.50, \$0.80  
(b) Change from \$8:  
\$3.25, \$1.75, \$0.45, \$1.65, \$1.05  
\$1.45, \$0.75, \$1.90, \$0.20, \$0.55  
(c) Change from \$25:  
\$3.50, \$1.50, \$2.20, \$1.85, \$0.60  
\$3.65, \$4.50, \$3.10, \$1.20, \$2  
(d) Change from \$30:  
\$9.50, \$0.60, \$7.85, \$2.50, \$5.70  
\$3.90, \$7.60, \$4.25, \$6.40, \$8.20

**Page 57 Magic bags of money**

Teacher check

**Page 58 More than one way to make a dollar**

Teacher check

**Page 59 Six coin totals**

- (b) 20c, 30c, 40c, 50c, 60c, 70c  
(c) 40c, 60c, 80c, \$1, \$1.20, \$1.40  
(d) \$1, \$1.50, \$2, \$2.50, \$3, \$3.50  
(e) \$2, \$3, \$4, \$5, \$6, \$7  
(f) \$4, \$6, \$8, \$10, \$12, \$14
- (b) \$1.20, \$2.20, \$2.30, \$3.30, \$3.40, \$4.40  
(c) 90c, \$1.40, \$1.60, \$2.10, \$2.30, \$2.80  
(d) \$1.05, \$1.10, \$1.60, \$1.65, \$2.15, \$2.20  
(e) \$2.20, \$2.40, \$3.40, \$3.60, \$4.60, \$4.80  
(f) \$4.50, \$5, \$7, \$7.50, \$9.50, \$10
- (b) \$2.70, \$3.20, \$5.20, \$5.30, \$5.80, \$7.80  
(c) \$3.40, \$4.40, \$6.40, \$6.60, \$7.60, \$9.60  
(d) \$3.10, \$3.20, \$5.20, \$5.70, \$5.80, \$7.80  
(e) \$2.60, \$2.70, \$3.20, \$4.20, \$4.30, \$4.80  
(f) \$4.15, \$4.25, \$4.30, \$6.30, \$6.40, \$6.45

**Page 60 Six ways Sam**

- \$1, 50c, \$1, \$2, 10c, \$2
- \$1, \$2, 50c, \$2, \$2, \$1
- 50c, \$1, 10c, 50c, \$2, 50c
- 20c, \$2, \$1, \$2, 20c, \$1

**Page 61 The great who am I?**

- (a) 10c (b) 20c  
(c) 5c (d) \$1  
(e) 50c
- (a) 10c, \$2 (b) 20c, \$1  
(c) \$2, 5c (d) \$1, 10c
- (a) 20c (b) \$2  
(c) 5c (d) 50c  
(e) 10c (f) \$1

**Page 62 Three coins and a note**

- (a) Change from 50c :  
45c, 10c, 35c, nil, 25c  
15c, 30c, 40c, 20c, 5c  
(b) Change from \$1:  
55c, 30c, 65c, 20c, 45c  
60c, 15c, 25c, 50c, 35c  
(c) Change from \$2:  
50c, \$1.05, 75c, 40c, 15c  
\$1.55, 90c, nil, 30c, 55c  
(d) Change from \$5:  
\$2.65, 85c, \$2.40, 45c, \$2.15  
\$1.25, \$3.20, \$3.85, \$1.70, \$2.05



**P&A – 1**

**Page 63 Hold that pattern**

1. (a) Add 2
- (b) Subtract 5
- (c) Add 3
- (d) Subtract 4

**Page 64 Hold that pattern again!**

1. (a) Add 5, minus 1 – 74, 73, 78
- (b) Add 3, add 4 – 34, 38, 41
- (c) Add 5, add 10 – 56, 66, 71
- (d) Add 6, minus 3 – 90, 87, 93

**Page 65 Shapes that build or shrink**

1. (a) 10 stars (b) 12 rectangles
- (c) 7 hexagons (d) 2 triangles
- (e) 1 cup (f) 8 crosses
- (g) 4 diamonds

**Page 66 And the rule is?**

1. + 5, - 4, + 5, + 10, - 2, - 3, + 11, + 5, + 4, - 3

**Page 67 Ahh – I see the patterns!**

1. - 4, - 1
- + 10, + 9
- + 10, + 3
- + 9, + 2
- + 8, + 4
- 6
- + 2, + 3
- + 10, + 5
- 10, - 1
- + 2, + 4, + 6

2. Teacher check

**Page 68 Watch the pattern and make it grow!**

Rule	Next 5
- 3	22, 19, 16, 13, 10
+ 4, + 2	68, 70, 74, 76, 80
+ 10, - 5	31, 26, 36, 31, 41
+ 2, + 3	34, 37, 39, 42, 44
+ 4, - 1	87, 86, 90, 89, 93
+ 10, - 5	55, 50, 60, 55, 65
- 3, - 6	79, 73, 70, 64, 61
+ 2, + 4, + 6	32, 36, 42, 44, 48
+ 9, - 2	97, 95, 104, 102, 111
+ 8, - 4	68, 64, 72, 68, 76

**Page 69 Read the rules and lets go**

1. 37, 41, 45, 49, 53, 57
- 95, 92, 89, 86, 83, 80
- 19, 23, 26, 30, 33, 37
- 54, 59, 62, 67, 70, 75
- 96, 91, 86, 81, 76, 71
- 69, 72, 75, 78, 81, 84
- 48, 58, 62, 72, 76, 86
- 69, 71, 72, 75, 77, 78
- 54, 59, 63, 68, 72, 77
- 46, 44, 41, 39, 36, 34

2. Teacher check

**Page 70 Know the rule! Where did we get to?**

1. 5, 8, 12, 15, 19, 22, 26, 29, 33 – reached 33
- 11, 15, 20, 24, 29, 33, 38, 42, 47, 51, 56 – reached 56
- 13, 18, 19, 24, 25, 30, 31, 36, 37 – reached 37
- 18, 21, 26, 29, 34, 37, 42, 45, 50, 53, 58, 61, 66 – reached 66
- 11, 13, 16, 18, 21, 23, 26, 28, 31 – reached 31

**Page 71 Know the rule! This time take away**

1. 45, 40, 38, 33, 31, 26, 24, 19, 17, 12, 10 – reached 10
- 33, 30, 26, 23, 19, 16, 12, 9, 5 – reached 5
- 61, 57, 52, 48, 43, 39, 34, 30, 25 – reached 25
- 73, 68, 67, 62, 61, 56, 55, 50, 49 – reached 49
- 58, 55, 50, 47, 42, 39, 34, 31, 26 – reached 26
- 92, 90, 87, 85, 82, 80, 77, 75, 72, 70, 67 – reached 67

**Page 72 Know the rule! How many moves? – 1**

1. 5, 10, 12, 17, 19, 24, 26 – 4 moves
- 7, 10, 15, 18, 23, 26, 31, 34 – 5 moves
- 12, 16, 19, 23, 26, 30, 33, 37 – 5 moves
- 4, 11, 12, 19, 20, 27 – 3 moves
- 8, 11, 15, 18, 22, 25 – 3 moves
- 7, 12, 14, 19, 21, 26 – 3 moves

**Page 73 Know the rule! How many moves? – 2**

1. 75, 70, 68, 63, 61, 56 – 3 moves
- 57, 54, 49, 46, 41, 38 – 3 moves
- 42, 38, 35, 31, 28, 24 – 3 moves
- 94, 87, 86, 79, 78, 71 – 3 moves
- 68, 65, 61, 58, 54, 51, 47 – 4 moves
- 54, 49, 47, 42, 40, 35, 33 – 4 moves

**Page 74 Who wins the race?**

1. (a)

	Rule	1	2	3	4	5	6	7	winner
10	+ 4, - 1	14	13	17	16	20	19	23	
16	+ 3, - 1	19	18	21	20	23	22	25	Yes

- (b)

	Rule	1	2	3	4	5	6	7	winner
21	+ 5, - 2	26	24	29	27	32	30	35	
27	+ 4, - 1	31	30	34	33	37	36	40	Yes

- (c)

	Rule	1	2	3	4	5	6	7	winner
43	+ 5, - 2	48	46	51	49	54	52	57	
53	+ 6, - 1	59	58	64	63	69	68	74	Yes

- (d)

	Rule	1	2	3	4	5	6	7	winner
101	- 4, - 1	97	96	92	91	87	86	82	Yes
116	- 6, - 1	110	109	103	102	96	95	89	

- (e)

	Rule	1	2	3	4	5	6	7	winner
55	+ 8, - 2	63	61	69	67	75	73	81	
59	+ 7, - 1	66	65	72	71	78	77	84	Yes

Teacher check predictions