Maths
Test Bank
Year 6

SAMPLE

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1A Place value (Part 1)

1 Shade one bubble

What is the largest number in this set of numbers?

- ◯ 73 462
- ◯ 73 426
- ◯ 73 624
- ◯ 73 642

2 Shade one bubble

What is the smallest number that can be made using each of these digits once?

3, 7, 5, 8, 2, 9

- ◯ 325 789
- ◯ 352 789
- ◯ 235 789
- ◯ 235 798

3 Shade one bubble

What is the largest number that can be made from these digits if the 9 is in the ten thousands place?

3, 7, 5, 8, 2, 9

- ◯ 897 532
- ◯ 987 532
- ◯ 789 532
- ◯ 798 532

4 Write on the lines

Write 14 204 079 in words.

5 Shade one bubble

Rounded to the nearest hundred thousand, 1 449 999 becomes:

- ◯ 1 500 000
- ◯ 1 440 000
- ◯ 1 400 000
- ◯ 1 450 000

6 Shade one bubble

3 000 000 + 40 000 + 7000 + 500 + 70 is the same as:

- ◯ 3 400 757
- ◯ 3 040 757
- ◯ 3 407 570
- ◯ 3 047 570

7 Write on the lines

Write **in words** the number that is **one hundred thousand** more than 452 983 000.

8 Write on the lines

Write **in words** the number that is **one hundred** less than 1 000 078.

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1

a Circle the numbers that are larger than fifteen million but less than one hundred million.

40 350 045	5 045 305	115 350 045	51 054 350
15 045 305	14 045 350	95 540 053	150 045 305

b By how many is 10 000 000 less than one hundred million?

2

a You know that 1 742 385 is bigger than 1 724 385 because:

- ⬭ The millions digit is worth more in the first number.
- ⬭ The hundreds of thousands digit is worth more in the first number.
- ⬭ The tens of thousands digit is worth more in the first number.
- ⬭ The thousands digit is worth more in the first number.

b By how many is the second number smaller than the first number?

3

According to the Australian Bureau of Statistics, the population of Brisbane was 2 100 000 in 2011 (to the nearest hundred thousand). The actual number can be made using each of the following digits once:

1 2 4 5 6 7 7

Make a list of the numbers that could represent the actual population of Brisbane in 2011. (There are more than ten possibilities.)

4

In 1959 the population of Australia reached 10 million for the first time. In the year before that, the population was just under 10 million, but it was rounded up to 10 million. The digits that make up the exact population in 1958 are:

2 4 4 5 6 7 9

Use the following clues to help you work out the population:

- There were 6 ones and 5 tens of thousands.
- The same digit was in the tens and the thousands column.

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1B Number properties (Part 1)

1 Shade one bubble

Which of these is a prime number?

- ◯ 13
- ◯ 15
- ◯ 21
- ◯ 25

2 Shade one bubble

Which of these is a composite number?

- ◯ 23
- ◯ 25
- ◯ 29
- ◯ 31

3 Shade one bubble

The prime factors of 15 are:

- ◯ 1 and 15
- ◯ 3 and 15
- ◯ 1 and 5
- ◯ 3 and 5

4 Shade one bubble

The prime factors of 20 are:

- ◯ 2, 2 and 5
- ◯ 2, 5 and 5
- ◯ 2, 4 and 5
- ◯ 2, 5 and 10

5 Shade one bubble

The first three square numbers are 1, 4 and 9. The next square number is:

- ◯ 10
- ◯ 12
- ◯ 16
- ◯ 20

6 Shade one bubble

The ninth square number is the same as the answer to:

- ◯ the sum of the first nine numbers
- ◯ the sum of the first nine even numbers
- ◯ the sum of the first nine odd numbers
- ◯ the sum of the first nine square numbers

7 Shade one bubble

Which of these is the largest square number between 100 and 200?

- ◯ 13^2
- ◯ 14^2
- ◯ 15^2
- ◯ 16^2

8 Shade one bubble

The thirteenth triangular number is:

- ◯ 13
- ◯ 87
- ◯ 91
- ◯ 113

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1

a How do you know that 23 is a prime number?

b Arrange the two-digit numbers that have a 3 in the ones column into prime and composite numbers.

c Compare the number of prime numbers in Question 1b with the number of composite numbers.

2

The number 9 has three factors. If you double 9, you double the number of factors. Does this pattern continue if you double 18 and then double 36?

a Write the factors for each number (9, 18, 36 and 72).

b What do you notice about the number of factors for each of the numbers?

c If you double 72, how many factors does the number have?

3

a $2^2 = 4$. This is also the answer to the sum of the first two odd numbers (1 + 3 = 4). Does this pattern continue for other square numbers? ($3^2 = 9$ and 1 + 3 + 5 = ?) Write down your findings.

b Use this information to find a quick way to calculate the answer to:
1 + 3 + 5 + 7 + 9 + 11 + 13 + 15 + 17 + 19 + 21 + 23

4

a The first two triangular numbers are odd: 1 and 3. Are there any even triangular numbers? Look at the sequence of triangular numbers lower than 100 to find out.

b How does the sequence of triangular numbers compare with the sequence of square numbers?

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ANSWERS

1A (PART 1)

1 73 642 **2** 235 789 **3** 897 532

4 fourteen million, two hundred and four thousand and seventy-nine

5 1 400 000 **6** 3 047 570

7 four hundred and fifty-three million (and) eighty-three thousand

8 nine hundred and ninety-nine thousand, nine hundred and seventy-eight

1A (PART 2)

1 a 40 350 045, 51 054 350, 15 045 305, 95 540 053

1 b 90 million (90 000 000)

2 a The tens of thousands digit is worth more in the first number.

2 b 18 000 or 18 thousands

3 Students should note that the first three digits must be 2, 1 and 4 in order to round the total to 2 100 000. Possible answers:
2 145 677, 2 145 767, 2 145 776, 2 146 577, 2 146 757, 2 146 775, 2 147 567, 2 147 576, 2 147 657, 2 147 675, 2 147 756, 2 147 765

4 9 754 246

1B (PART 1)

1 13 **2** 25

3 3 and 5 **4** 2, 2 and 5

5 16 **6** the sum of the first nine odd numbers

7 14^2 **8** 91

1B (PART 2)

1 a Teacher to check, e.g. It is only divisible by 1 and itself

1 b Prime: 13, 23, 43, 53, 73, 83. Composite: 33, 63, 93

1 c Teacher to check, e.g. There are twice as many prime two-digit numbers ending in 3 as there are composite.

2 a 9: three factors: 1, 9, 3

18: six factors: 1, 18, 2, 9, 3, 6

36: nine factors: 1, 36, 2, 18, 3, 12, 4, 9, 6

72: twelve factors: 1, 72, 2, 36, 3, 24, 4, 18, 6, 12, 8, 9

2 b The number of factors increases by 3 each time the number is doubled

2 c 144 has fifteen factors: 1, 144, 2, 72, 3, 48, 4, 36, 6, 24, 8, 18, 9, 16, 12

3 a Each square number is the same as the sum of the equivalent number of odd numbers in sequence (10^2 = 100 = the sum of the first 10 odd numbers)

3 b 144 (These are the first 12 odd numbers and 12^2 = 144)

4 a The triangular numbers lower than 100 are 1, 3, 6, 10, 15, 21, 28, 36, 45, 55, 66, 78 and 91. Two odd numbers are followed by two even numbers. This pattern continues past 100.

4 b There is a similar pattern for square numbers – odd and even numbers alternate (1, 4, 9, 12, 25, etc.).

1C (PART 1)

1 1300 + 700 **2** 500

3 3000 + 1000 + 400 + 200 + 20 + 70 + 5 + 3

4 2934 – 300 + 35 **5** 3696

6 4121 **7** 26 900 **8** 12 221

1C (PART 2)

1 Look for students who use a time-saving strategy that pair numbers to equal 100, such as 51 and 49. For example:

Bus	Number of students
1	51
2	49
3	52
4	48
5	53
6	47
Total	300

2 Teacher to check, e.g. using the compensation method:

Round 79 to 80

Take 80 from 155 = 75.

Add one to the answer because I took away 1 too many.

75 + 1 = 76

So, 155 – 79 = 76

3 a $3100 **3 b** $3097

4 a Students should see the connection between addition and subtraction and therefore enter 87654321 – 12345678

You would need to subtract 75 308 643

4 b Teacher to check, e.g. First you subtract 12 345 678 from 87 654 321. Then, to check your answer, you re-enter 87654321 and subtract 75308643. The answer shown will be 12345678.

1D (PART 1)

1 7989 **2** 6014 **3** 44 897

4 Addition answer: 5021. Subtraction: 5021 – 1586 = 3435 or 5021 – 3435 = 1586

5 41 263 **6** 20 797

7 458 542 **8** 456 725

1D (PART 2)

1 a 514 236

1 b Teacher to check, e.g. I subtracted 527 819 from 1 042 055 to find the answer.

2 a Teacher to check, e.g. She set out the columns incorrectly, mixing the tens of thousands and the hundreds of thousands and so on.

2 b 300 145

3 987 654 321 – 123 456 789 = 864 197 532

4 a The answer is always 1089 using any 3 different digits

4 b The trick works with a zero

4 c When 2 of the 3 digits are the same the answer is still 1089, unless there is a difference of 1 between the 2 digits. In this case, the answer is 198.

1E (PART 1)

1 1750 **2** 54

3 $123.50 **4** $12.50

5 1500 **6** 1500 ÷ 5 and 45 ÷ 5

7 70 **8** 299

1E (PART 2)

1 a 2.5

1 b Teacher to check, e.g. each digit moves one place value to the left.

2 a 5600

2 b The total number of zeros is the same (3)

2 c Teacher to check, e.g. Yes, but if the product of the two digits ends in a zero (e.g. 8 × 5), there will be an extra zero in the answer.

3 a Divide 486 by 2 and put a zero on the end

3 b 486 ÷ 20 = 24.3. Teacher to check strategy, e.g. divide 486 by 10 and then halve the answer because this makes the calculation easier.

4 a The box of 30 works out cheaper at $0.82 each, compared to $0.85 each when buying 5.

4 b Teacher to check, e.g. I would choose the tray of 5 because it's only 3c dearer for each one and if I bought 30, some of the avocados might go off before I had time to eat them.

1F (PART 1)

1 5 **2** 1110

3 20 **4** 19

5 (36 × 20) + (36 × 7) **6** 1530

7 10 500 **8** 324

1F (PART 2)

1 a 29 456 **1 b** 331 436

2 a Teacher to check, e.g because the second problem has 78 × 7 ones and 78 × 2 tens, which is the same as 78 × 27.

2 b 2106 **2 c** Teacher to check

3 Do the students deal with the remainder appropriately?

3 a 131 (There is a remainder of 3 nails)

3 b $131\frac{3}{4}$ **3 c** $131.75

4 Teacher to check. Week's total must equal 203. The four blank days must total 123. Check that there are no inappropriately high or low temperatures.

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