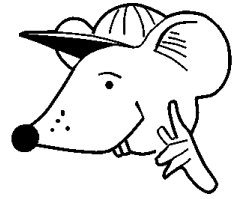


# MATHEMATICS



**N.S. Yr. 4 P.18**

**Recognise odd and even numbers.  
Multiples and tests of divisibility.**

## Equipment

Paper, pencil, ruler

# MathSphere

© MathSphere P.O. Box 1234 Worthing BN13 2UJ [www.mathsphere.co.uk](http://www.mathsphere.co.uk)

## Concepts

Children should use the words *multiple, digit*

Children should know the difference between *odd* and *even* numbers.

Children should be able to carry out **tests of divisibility**, i.e. see quickly if a number is divisible by another. The most common tests are:

Divisible by 100	Number ends in 00	e.g. 300
Divisible by 10	Number ends in 0	e.g. 40
Divisible by 5	Number ends in 0 or 5	e.g. 35, 60
Divisible by 2	Number ends in 0, 2, 4, 6 or 8	e.g. 42, 78, 90
Divisible by 3	Add the digits in the number. If the total is divisible by 3, then so is the number.	E.g. 57. Sum of digits = $5 + 7 = 12$ . 12 is divisible by 3, therefore so is 57.
Divisible by 4	Last two figures (digits) are divisible by 4	e.g. 328

Children should recognise multiples of **10, 100 and 1000**

E.g. 5 000 is a multiple of 1 000

500 is a multiple of 100

50 is a multiple of 10

1. Which of these numbers are **odd** ?

273, 274, 864, 943, 999, 757, 786, 329, 546

2. Which of these numbers are **even** ?

387, 890, 392, 777, 735, 957, 376, 884, 990

3. What can you say about the numbers on **both** sides of an **even** number?

4. What can you say about the numbers on both sides of an **odd** number?

5. What can you say about the numbers in **bold** type ?

**345**, 346, **347**, 348, **349**, 350, **351**, 352, **353**

6. What can you say about the numbers in **bold** type ?

485, **486**, 487, **488**, 489, **490**, 491, **492**, 493

7. Start at 1 and keep adding 2. What sequence of numbers do you get?

8. Start at 2 and keep adding 2. What sequence of numbers do you get?

9. Put numbers in the boxes to continue the sequence:

**276**, **278**, **280**, **282**, , , ,

10. Put numbers in the boxes to continue the sequence:

**493**, **495**, **497**, **499**, , , ,

11. What **odd** number comes before 875 ?

12. What **even** number comes before 900 ?

1. Which digits do all **odd** numbers end in?
2. Which digits do all **even** numbers end in?
3. What can you say happens when you add two **odd** numbers? If you are not sure try adding a few pairs of odd numbers to see. Eg.  $15 + 9$ .
4. What can you say happens when you add two **even** numbers? If you are not sure try adding a few pairs of even numbers to see. Eg.  $18 + 12$ .
5. Write down all the **odd** numbers between 462 and 488.
6. Write down all the **even** numbers between 887 and 903.
7. What can you say happens when you add an **odd** number and an **even** number? If you are not sure try adding a few pairs like this:  $17 + 8$ .
8. What can you say about all the numbers in the four times table (Remember this is an exercise on odd and even numbers!).
9. Put numbers in the boxes to continue the sequence:  
 $592, 594, 596, 598,$  , , ,
10. Put numbers in the boxes to continue the sequence:  
 $333, 335, 337, 339,$  , , ,
11. What **odd** number comes before 501 ?
12. What **even** number comes before 1 000 ?

1. Put any two numbers in the **top row** to complete it and any two numbers in the **left column** to complete it.

			↓	↓
	<b>+</b>	<b>15</b>	<b>24</b>	
	<b>8</b>	<b>Odd</b>	<b>Even</b>	
	<b>23</b>			
⇒				
⇒				

Without working out the answers, write **odd** or **even** in the table to show if the **sum** of the numbers is odd or even. Two have been done for you.

2. In this table put whether the answer is **odd** or **even** for each pair of numbers. The number in the left column is subtracted from the number in the top row.

Eg. **79 – 10** is odd.

	<b>–</b>	<b>79</b>	<b>58</b>	<b>96</b>	<b>87</b>
<b>10</b>		<b>Odd</b>			
<b>37</b>					<b>Even</b>
<b>22</b>					
<b>45</b>					

1. Look at this sequence of numbers:

**3, 5, 9, 15, 23, 33, ...**

This sequence was made by starting at 3 and then adding 2, then 4, then 6, then 8, and so on.

What was the starting number for this sequence?

**4, 6, 10, 18, 34, 66, ...**

Which numbers were added on each time?

2. Make up a sequence of **odd** numbers like the first one in question 1.

Say what your starting number is and what you added on each time.

3. Make up a sequence of **even** numbers like the second one in question 1.

Say what your starting number is and what you added on each time.

4. Complete this addition table, but only write down the answers that are **even**.

<b>+</b>	<b>12</b>	<b>32</b>	<b>17</b>	<b>23</b>	<b>19</b>
<b>5</b>					
<b>14</b>					
<b>25</b>					
<b>63</b>					
<b>24</b>					

1. Can you spell the words *multiple*, *factor* and *digit* ? Ask someone to test you.

2. How many digits have these numbers?

**12, 3 843, 143, 9 000 000**

3. If one number divides exactly into another with no remainder, we say the second number is a **multiple** of the first number.

E.g. **6** divides exactly into **12**, therefore **12** is a multiple of **6**.

**5** divides exactly into **45**, therefore **45** is a multiple of **5**.

Which of these statements are true and which are false?

a) **16** is a multiple of **4**

b) **42** is a multiple of **7**

c) **15** is a multiple of **2**

d) **100** is a multiple of **3**

e) **25** is a multiple of **5**

f) **24** is a multiple of **17**

g) **40** is a multiple of **4** and **10**

h) **27** is a multiple of **3** and **9**

i) **35** is a multiple of **7** and **6**

j) **30** is a multiple of **4**

k) **28** is a multiple of **2, 4, 7** and **14**

4. If one number divides exactly into another with no remainder, we say the first number is a **factor** of the second number.

E.g. **7** divides exactly into **14**, therefore **7** is a factor of **14**.

**3** divides exactly into **21**, therefore **3** is a factor of **21**.

Which of these statements are true and which are false?

a) **6** is a factor of **42**

b) **6** is a factor of **72**

c) **3** is a factor of **27**

d) **10** is a factor of **34**

e) **8** is a factor of **54**

f) **9** is a factor of **90**

g) **2** and **5** are factors of **10**

h) **12** and **7** are factors of **72**

i) **8** and **5** are factors of **80**

j) **2** and **4** are factors of **4**

k) **1, 3** and **8** are factors of **48**

5. Write down three multiples of **7** smaller than **50**.

1. What is the difference between a **factor** and a **multiple**?
2. Put these numbers in order so that the ones with least digits are first and those with most digits are last:

**346, 6 863, 4, 93 876, 37**

3. a) Put a ring around the numbers that are multiples of **6**:

**23, 50, 48, 24, 67, 23, 30, 42**

- b) Put a ring around the numbers that are multiples of **11**:

**43, 99, 78, 33, 88, 23, 110, 22**

- c) Put a ring around the numbers that are multiples of **7**:

**35, 49, 42, 70, 63, 77, 21, 91**

4. a) Put a ring around the numbers that are factors of **24**:

**2, 9, 48, 4, 12, 3, 6, 7, 1**

- b) Put a ring around the numbers that are factors of **100**:

**45, 50, 35, 25, 70, 200, 10, 4**

- c) Put a ring around the numbers that are factors of **45**:

**9, 90, 180, 7, 1, 15, 3, 5**

5. Write a multiple of **37** that is between **100** and **120**.



## Answers

### Page 3

- |                               |                               |
|-------------------------------|-------------------------------|
| 1. 273, 943, 999, 757, 329    | 2. 890, 392, 376, 884, 990    |
| 3. They are both <b>odd</b> . | 4. They are both <b>even</b>  |
| 5. They are all <b>odd</b> .  | 6. They are all <b>even</b> . |
| 7. The <b>odd</b> numbers.    | 8. The <b>even</b> numbers.   |
| 9. 284, 286, 288, 290         | 10. 501, 503, 505, 507        |
| 11. 873                       | 12. 898                       |

### Page 4

- |  |                                |
|--|--------------------------------|
| 1. 1, 3, 5, 7, or 9  | 2. 0, 2, 4, 6, or 8            |
| 3. The result is <b>even</b> .                                     | 4. The result is <b>even</b> . |
| 5. 463, 465, 467, 469, 471, 473, 475, 477, 479, 481, 483, 485, 487 |                                |
| 6. 888, 890, 892, 894, 896, 898, 900, 902                          |                                |
| 7. The result is <b>odd</b> .                                      | 8. They are all even.          |
| 9. 600, 602, 604, 606  | 10. 341, 343, 345, 347         |
| 11. 499  | 12. 998                        |

### Page 5

1. Entries in table depend on which numbers pupil chooses.
- 2.
- |    |      |      |      |      |
|----|------|------|------|------|
| –  | 79   | 58   | 96   | 87   |
| 10 | Odd  | Even | Even | Odd  |
| 37 | Even | Odd  | Odd  | Even |
| 22 | Odd  | Even | Even | Odd  |
| 45 | Even | Odd  | Odd  | Even |

### Page 6

1. Starting number is 4. Add 2, 4, 8, 16, 32
2. Any odd sequence with definite starting number and clear rule for adding on.
3. Any even sequence with definite starting number and clear rule for adding on.
- 4.
- |    |    |    |    |    |
|----|----|----|----|----|
| —  | —  | 22 | 28 | 24 |
| 26 | 46 | —  | —  | —  |
| —  | —  | 42 | 48 | 44 |
| —  | —  | 80 | 86 | 82 |
| 36 | 66 | —  | —  | —  |

### Page 7

2. 2, 4, 3, 7
3. a) true b) true c) false d) false e) true f) false  
g) true h) true i) false j) false k) true
4. a) true b) true c) true d) false e) false f) true  
g) true h) false i) true j) true k) true
5. Any three of 0, 7, 14, 21, 28, 35, 42, 49 (or any negative multiple of 7!)

## **Answers**

### **Page 8**

- 1.** A factor is a number that divides into another number.  
A multiple is a number that is exactly divisible by another number.
- 2.** 4, 37, 346, 6 863, 93 876
- 3.** **a)** 48, 24, 30, 42   **b)** 99, 33, 88, 110, 22  
      **c)** 35, 49, 42, 70, 63, 77, 21 91
- 4.** **a)** 2, 4, 12, 3, 6, 1      **b)** 50, 25, 10, 4  
      **c)** 9, 1, 15, 3, 5
- 5.** 111