

Prime numbers

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Prime numbers

Date: _____

Sit down with a
pen and paper.





Prime number: A prime number has exactly two factors, 1 and itself.

Examples: 24 has many factors, 1, 2, 3, 4, 6, 8, 12, 24
So 24 is **not** a prime number.

The factors of 17 are just 1 and 17.
17 is a prime number.

Questions and answers

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The following questions will get you thinking about prime numbers.

Attempt the question first.

If you are stuck read the answers on the next page to give you a better understanding.

- 1 How many factors does the number 1 have? **Is it prime?**
- 2 Is the number 7 prime?
- 3 If a number ends with the digit 4 can it be prime?
- 4 Is the number 105 prime? Explain your answer.
- 5 Can a number ending in zero be prime?
- 6 All odd numbers are primes, true or false?

1 How many factors does the number 1 have? **Is it prime?**

The number 1 has only one factor, itself. Primes have exactly 2 factors so therefore 1 is not prime.

2 Is the number 7 prime?

Yes, the number 7 has exactly two factors, 1 and 7.

3 If a number ends with the digit 4 can it be prime?

Any number ending in 4 is a multiple of 2, the number 2 will be a factor, therefore the number will have more than two factors and won't be prime.

4 Is the number 105 prime? Explain your answer.

105 is a multiple of 5, therefore 5 will be a factor of 105, the number will have more than two factors and won't be prime.

5 Can a number ending in zero be prime?

Any number ending in zero is a multiple of 10, the number 10 will be a factor, therefore the number will have more than two factors and won't be prime.

6 All odd numbers are primes, true or false?

False, 9 is odd and has the factors, 1,3, 9. That is more than two factors so 9 is not prime

Identifying prime numbers.

We will be using **Eratosthenes** method of finding primes.

On the next slide click on the multiple button to eliminate those numbers.

Start at the top and work down.

It will leave all the prime numbers under 100.

These are important numbers and need to be written down.



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Multiples of 2

×	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
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

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Multiples of 2

Multiples of 3

✖	2	3	✖	5	✖	7	✖	9	✖
11	✖	13	✖	15	✖	17	✖	19	✖
21	✖	23	✖	25	✖	27	✖	29	✖
31	✖	33	✖	35	✖	37	✖	39	✖
41	✖	43	✖	45	✖	47	✖	49	✖
51	✖	53	✖	55	✖	57	✖	59	✖
61	✖	63	✖	65	✖	67	✖	69	✖
71	✖	73	✖	75	✖	77	✖	79	✖
81	✖	83	✖	85	✖	87	✖	89	✖
91	✖	93	✖	95	✖	97	✖	99	✖

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✖	2	3	✖	5	✖	7	✖	✖	✖
11	✖	13	✖	✖	✖	17	✖	19	✖
✖	✖	23	✖	25	✖	✖	✖	29	✖
31	✖	✖	✖	35	✖	37	✖	✖	✖
41	✖	43	✖	✖	✖	47	✖	49	✖
✖	✖	53	✖	55	✖	✖	✖	59	✖
61	✖	✖	✖	65	✖	67	✖	✖	✖
71	✖	73	✖	✖	✖	77	✖	79	✖
✖	✖	83	✖	85	✖	✖	✖	89	✖
91	✖	✖	✖	95	✖	97	✖	✖	✖

Multiples of 2

Multiples of 3

Multiples of 4 are also multiples of 2 so are already crossed out.

Multiples of 5

Prime numbers

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✖	2	3	✖	5	✖	7	✖	✖	✖
11	✖	13	✖	✖	✖	17	✖	19	✖
✖	✖	23	✖	✖	✖	✖	✖	29	✖
31	✖	✖	✖	✖	✖	37	✖	✖	✖
41	✖	43	✖	✖	✖	47	✖	49	✖
✖	✖	53	✖	✖	✖	✖	✖	59	✖
61	✖	✖	✖	✖	✖	67	✖	✖	✖
71	✖	73	✖	✖	✖	77	✖	79	✖
✖	✖	83	✖	✖	✖	✖	✖	89	✖
91	✖	✖	✖	✖	✖	97	✖	✖	✖

Multiples of 2

Multiples of 3

Multiples of 4 are also multiples of 2 so are already crossed out.

Multiples of 5

Multiples of 6 are also multiples of 3 so are already crossed out.

Multiples of 7

Prime numbers

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✖	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	✖	✖	✖

Multiples of 2

Multiples of 3

Multiples of 4 are also multiples of 2 so are already crossed out.

Multiples of 5

Multiples of 6 are also multiples of 3 so are already crossed out.

Multiples of 7

Make a list of all the Prime Numbers.



Test your understanding

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- 1 What is the only even prime number?
- 2 List the prime numbers between 30 and 40.
- 3 What two different prime numbers add to make 21?
- 4 Which two primes have a difference of 9?
- 5 Is 51 a prime number?
- 6 Three different primes sum to 110. Name one of those prime numbers.

- 1 What is the only even prime number? **2**
- 2 List the prime numbers between 30 and 40. **31 and 37**
- 3 What two different prime numbers add to make 21?
2 + 19
- 4 Which two primes have a difference of 9? **11 - 2**
- 5 Is 51 a prime number? **No, 3×17**
- 6 Three different primes sum to 110. Name one of those prime numbers.
Odd + Odd + Odd = Odd
2 is the only even prime. As 110 is even one of those primes must be even.
O + O + E = E

End of the lesson

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Well done for completing the lesson.



Reflections

A large, empty rounded rectangular box with a black border, intended for students to write their reflections.