

## Testing if a Number is Prime

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A positive whole number  $n$  is prime if it is divisible by just two numbers - 1 and itself.

1 is not a prime number.

We can test if a number  $n$  is prime by dividing by all the whole numbers up to and including  $\sqrt{n}$ .

We need not go so far. In fact we need only divide by the prime numbers up to  $\sqrt{n}$ .

Example: is 77 prime?

$$\sqrt{77} = 8.7....$$

so we need only divide by prime numbers up to and including 8.

. These are 2, 3, 5, 7

$$\frac{77}{2} = 38.5$$

$$\frac{77}{3} = 32.66666....$$

$$\frac{77}{5} = 15.4$$

$$\frac{77}{7} = 11$$

Hence  $77 = 11 \times 7$  is not prime.