

## Prime Numbers Investigation

The prime numbers between 1 and 50 are: 2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43 and 47.

Your task is to make all of the other numbers between 1 and 50 using only the prime numbers and multiplication.

To start you off:

1 = special (not prime!)

2 = prime

3 = prime

4 =  $2 \times 2$

5 = prime

6 =  $3 \times 2$  (you can't have  $1 \times 6$  as neither are prime)

7 = prime

8 =  $2 \times 2 \times 2$  (you can't have  $4 \times 2$  as 4 isn't prime)

9 =  $3 \times 3$

Challenge: The prime numbers between 51 and 100 are 53, 59, 61, 67, 71, 73, 79, 83, 89, 97. Can you make the other numbers between 51 and 100 using only prime numbers and multiplication?

## Solutions for 10 – 50

$$10 = 5 \times 2$$

$$11 = \text{prime}$$

$$12 = 2 \times 2 \times 3$$

$$13 = \text{prime}$$

$$14 = 2 \times 7$$

$$15 = 3 \times 5$$

$$16 = 2 \times 2 \times 2 \times 2$$

$$17 = \text{prime}$$

$$18 = 2 \times 3 \times 3$$

$$19 = \text{prime}$$

$$20 = 2 \times 2 \times 5$$

$$21 = 3 \times 7$$

$$22 = 2 \times 11$$

$$23 = \text{prime}$$

$$24 = 2 \times 2 \times 2 \times 3$$

$$25 = 5 \times 5$$

$$26 = 2 \times 13$$

$$27 = 3 \times 3 \times 3$$

$$28 = 2 \times 2 \times 7$$

$$29 = \text{prime}$$

$$30 = 2 \times 3 \times 5$$

$$31 = \text{prime}$$

$$32 = 2 \times 2 \times 2 \times 2 \times 2$$

$$33 = 3 \times 11$$

$$34 = 2 \times 17$$

$$35 = 5 \times 7$$

$$36 = 2 \times 2 \times 3 \times 3$$

$$37 = \text{prime}$$

$$38 = 2 \times 19$$

$$39 = 3 \times 13$$

$$40 = 2 \times 2 \times 2 \times 5$$

$$41 = \text{prime}$$

$$42 = 2 \times 3 \times 7$$

$$43 = \text{prime}$$

$$44 = 2 \times 2 \times 11$$

$$45 = 3 \times 3 \times 5$$

$$46 = 2 \times 23$$

$$47 = \text{prime}$$

$$48 = 2 \times 2 \times 2 \times 2 \times 3$$

$$49 = 7 \times 7$$

$$50 = 2 \times 5 \times 5$$