

Prime Factors
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OK, this can be done in your head, or it can be done using your Multiplication Grid or your Prime Number Grid together. Get your pencil. Ready?

Print out page 2. It's lots of pages, sorry, but it has to be.

For each number, please write its prime factors.

How? Not hard. Remember, we're giving your brain a workout, so if you skip steps, your brain won't be as strong.

First write a multiplication sentence that is true for each number.

For example, I could write $12 = 3 \times 4$

Check on your list of prime numbers if you need to, to see which of those numbers are prime numbers. *In my example, '3' is a prime number but '4' isn't.*

Re-write each multiplication sentence, replacing each non-prime number with another multiplication phrase that equals that non-prime.

So, I would have $12 = 3 \times 4 = 3 \times 2 \times 2$. Notice that I replaced '4' with '2 x 2'!

Check those numbers, are they prime? If not, do it again, re-writing any non-prime numbers. Check again, do it again if necessary. I promise that for all numbers under 128, there won't be more than six numbers in your final number-sentence.

Rewrite your number sentence so that the numbers are multiplied in number-order.

I will now have $12 = 3 \times 4 = 3 \times 2 \times 2 = 2 \times 2 \times 3$

If the only number sentence you can make for a number is 1 times the number (like $3 = 1 \times 3$) then write PRIME in big letters at the end of the line!

You now have the **Prime Factors** of each number written out. Check your answers with mine (*after you've worked it out on your own!!*) to be sure you have them all right. Now, carry this paper with Prime Factors around where you'll see it frequently. I like to tuck it in beside my seat in the car. Glance at it frequently. Then begin asking yourself to remember the Prime Factors of each number you see around the house or on the road.

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 = _____

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36 = _____

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79 = _____

80 = _____

81 = _____

82 = _____

83 = _____

84 = _____

85 = _____

86 = _____

87 = _____

88 = _____

89 = _____

90 = _____

91 = _____

92 = _____

93 = _____

94 = _____

95 = _____

96 = _____

97 = _____

98 = _____

99 = _____

100 = _____

2 = 1 x 2 PRIME
3 = 1 x 3 PRIME
4 = 2 x 2
5 = 1 x 5 PRIME
6 = 2 x 3
7 = 1 x 7 PRIME
8 = 2 x 2 x 2
9 = 3 x 3
10 = 2 x 5
11 = 1 x 11 PRIME
12 = 2 x 2 x 3
13 = 1 x 13 PRIME
14 = 2 x 7
15 = 3 x 5
16 = 2 x 2 x 2 x 2
17 = 1 x 17 PRIME
18 = 2 x 3 x 3
19 = 1 x 19 PRIME
20 = 2 x 2 x 5
21 = 3 x 7
22 = 2 x 11
23 = 1 x 23 PRIME
24 = 2 x 2 x 2 x 3
25 = 5 x 5
26 = 2 x 13
27 = 3 x 3 x 3
28 = 2 x 2 x 7
29 = 1 x 29 PRIME
30 = 2 x 3 x 5
31 = 1 x 31 PRIME
32 = 2 x 2 x 2 x 2 x 2
33 = 3 x 11
34 = 2 x 17
35 = 5 x 7
36 = 2 x 2 x 3 x 3
37 = 1 x 37 PRIME
38 = 2 x 19
39 = 3 x 13
40 = 2 x 2 x 2 x 5

41 = 1 x 41 PRIME
42 = 2 x 3 x 7
43 = 1 x 43 PRIME
44 = 2 x 2 x 11
45 = 3 x 3 x 5
46 = 2 x 23
47 = 1 x 47 PRIME
48 = 2 x 2 x 2 x 2 x 3
49 = 7 x 7
50 = 2 x 5 x 5
51 = 3 x 17
52 = 2 x 2 x 13
53 = 1 x 53 PRIME
54 = 2 x 3 x 3 x 3
55 = 5 x 11
56 = 2 x 2 x 2 x 7
57 = 3 x 19
58 = 2 x 29
59 = 1 x 59 PRIME
60 = 2 x 2 x 3 x 5
61 = 1 x 61 PRIME
62 = 2 x 31
63 = 3 x 3 x 7
64 = 2x 2x 2 x 2 x 2 x 2
65 = 5 x 13
66 = 2 x 3 x 11
67 = 1 x 67 PRIME
68 = 2 x 2 x 17
69 = 3 x 23
70 = 2 x 5 x 7
71 = 1 x 71 PRIME
72 = 2 x 2 x 2 x 3 x 3
73 = 1 x 73 PRIME
74 = 2 x 37
75 = 3 x 5 x 5
76 = 2 x 2 x 19
77 = 7 x 11
78 = 2 x 3 x 13
79 = 1 x 79 PRIME

80 = 2 x 2 x 2 x 2 x 5
81 = 3 x 3 x 3 x 3
82 = 2 x 41
83 = 1 x 83 PRIME
84 = 2 x 2 x 3 x 7
85 = 5 x 17
86 = 2 x 43
87 = 3 x 29
88 = 2 x 2 x 2 x 11
89 = 1 x 89 PRIME
90 = 2 x 3 x 3 x 5
91 = 7 x 13
92 = 2 x 2 x 23
93 = 3 x 31
94 = 2 x 47
95 = 5 x 19
96 = 2x 2 x 2 x 2 x 2 x 3
97 = 1 x 97 PRIME
98 = 2 x 7 x 7
99 = 3 x 3 x 11
100 = 2 x 2 x 5 x 5