

Expressing prime factors using exponents

Grade 6 Factoring Worksheet

Write each number as a product of prime factors. Then write the answer using exponents.

Number	Prime factorization	Exponent form
1) 48		
2) 54		
3) 72		
4) 80		
5) 96		
6) 88		
7) 120		
8) 75		
9) 50		
10) 168		
11) 180		
12) 192		

Answers

Number	Prime factorization	Exponent form
1) 48	$2 \times 2 \times 2 \times 2 \times 3$	$2^4 \times 3$
2) 54	$2 \times 3 \times 3 \times 3$	2×3^3
3) 72	$2 \times 2 \times 2 \times 3 \times 3$	$2^3 \times 3^2$
4) 80	$2 \times 2 \times 2 \times 2 \times 5$	$2^4 \times 5$
5) 96	$2 \times 2 \times 2 \times 2 \times 2 \times 3$	$2^5 \times 3$
6) 88	$2 \times 2 \times 2 \times 11$	$2^3 \times 11$
7) 120	$2 \times 2 \times 2 \times 3 \times 5$	$2^3 \times 3 \times 5$
8) 75	$3 \times 5 \times 5$	3×5^2
9) 50	$2 \times 5 \times 5$	2×5^2
10) 168	$2 \times 2 \times 2 \times 3 \times 7$	$2^3 \times 3 \times 7$
11) 180	$2 \times 2 \times 3 \times 3 \times 5$	$2^2 \times 3^2 \times 5$
12) 192	$2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 3$	$2^6 \times 3$