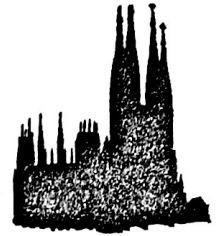


26pts



# Factor Towers

Write a pair of factors in each "story" of the factor tower. Count the number of different factors and write this number in the blank. Then answer the questions below.

18  
 $1 \times 18$   
 $2 \times 9$   
 $3 \times 6$   
 Number of factors 6

21  
 $1 \times 21$   
 $3 \times 7$   
 Number of factors 4

50  
 $1 \times 50$   
 $2 \times 25$   
 $5 \times 10$   
 Number of factors 6

13  
 $1 \times 13$   
 Number of factors 2

44  
 $1 \times 44$   
 $2 \times 22$   
 $4 \times 11$   
 Number of factors 6

25  
 $1 \times 25$   
 $5 \times 5$   
 Number of factors 3

30  
 $1 \times 30$   
 $2 \times 15$   
 $3 \times 10$   
 $5 \times 6$   
 Number of factors 8

64  
 $1 \times 64$   
 $2 \times 32$   
 $4 \times 16$   
 $8 \times 8$   
 Number of factors 7

51  
 $1 \times 51$   
 $3 \times 17$   
 Number of factors 4

37  
 $1 \times 37$   
 Number of factors 2

1  
 $1 \times 1$   
 Number of factors 1

45  
 $1 \times 45$   
 $3 \times 15$   
 $5 \times 9$   
 Number of factors 6

100  
 $1 \times 100$   
 $2 \times 50$   
 $4 \times 25$   
 $5 \times 20$   
 $10 \times 10$   
 Number of factors 9

96  
 $1 \times 96$   
 $2 \times 48$   
 $3 \times 32$   
 $4 \times 24$   
 $6 \times 16$   
 $8 \times 12$   
 Number of factors 12

67  
 $1 \times 67$   
 Number of factors 2

81  
 $1 \times 81$   
 $3 \times 27$   
 $9 \times 9$   
 Number of factors 5

36  
 $1 \times 36$   
 $2 \times 18$   
 $3 \times 12$   
 $4 \times 9$   
 $6 \times 6$   
 Number of factors 9

500  
 $1 \times 500$   
 $2 \times 250$   
 $4 \times 125$   
 $5 \times 100$   
 $10 \times 50$   
 $20 \times 25$   
 Number of factors 12

- Numbers that are multiplied to form a product are called factors.
- Which of the "tower numbers" have exactly two factors? 13, 37, 67
- Numbers that have exactly two factors are called prime numbers.
- Numbers that are squares of integers are called perfect squares.
- Which of the "tower numbers" have an odd number of factors? 25, 64, 1, 100, 81, 36
- Numbers that have an odd number of factors are perfect squares.
- List all the prime numbers less than 20: 2, 3, 5, 7, 11, 13, 17, 19
- List all the perfect squares less than 101: 1, 4, 9, 16, 25, 36, 49, 64, 81, 100