

## Prime Numbers

A-PF 1

**Instructions:** Determine if the number given is a Prime Number. You can do this by testing for divisibility. (For the exercises on this page, you only need to try divisibility tests for 2,3,and 5.) Mark the correct box.

1    2     Prime  
           NOT Prime

2    4     Prime  
           NOT Prime

3    3     Prime  
           NOT Prime

4    11     Prime  
           NOT Prime

5    15     Prime  
           NOT Prime

6    17     Prime  
           NOT Prime

7    10     Prime  
           NOT Prime

8    8     Prime  
           NOT Prime

9    7     Prime  
           NOT Prime

10    9     Prime  
           NOT Prime

11    6     Prime  
           NOT Prime

12    12     Prime  
           NOT Prime

13    31     Prime  
           NOT Prime

14    44     Prime  
           NOT Prime

15    14     Prime  
           NOT Prime

16    25     Prime  
           NOT Prime

17    20     Prime  
           NOT Prime

18    19     Prime  
           NOT Prime

## Composite Numbers

A-PF 2

**Instructions:** Multiply each set of Prime Factors to see what Composite Number they make.  
(We recommend using a calculator for these exercises.)

1  $2 \times 2 = \underline{4}$

2  $3 \times 3 = \underline{\hspace{2cm}}$

3  $2 \times 3 = \underline{\hspace{2cm}}$

4  $2 \times 5 = \underline{\hspace{2cm}}$

5  $2 \times 2 \times 3 = \underline{\hspace{2cm}}$

6  $3 \times 5 = \underline{\hspace{2cm}}$

7  $2 \times 2 \times 2 = \underline{\hspace{2cm}}$

8  $5 \times 5 = \underline{\hspace{2cm}}$

9  $2 \times 3 \times 3 = \underline{\hspace{2cm}}$

10  $2 \times 3 \times 5 = \underline{\hspace{2cm}}$

11  $3 \times 3 \times 3 = \underline{\hspace{2cm}}$

12  $3 \times 3 \times 5 = \underline{\hspace{2cm}}$

13  $2 \times 2 \times 3 \times 3 = \underline{\hspace{2cm}}$

14  $2 \times 3 \times 5 \times 7 = \underline{\hspace{2cm}}$

15  $2 \times 3 \times 3 \times 3 = \underline{\hspace{2cm}}$

16  $2 \times 2 \times 2 \times 3 \times 7 = \underline{\hspace{2cm}}$

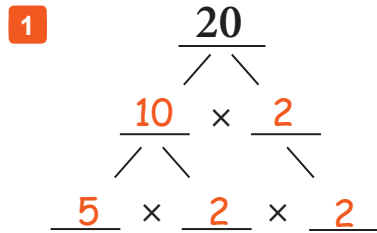
17  $2 \times 2 \times 3 \times 5 = \underline{\hspace{2cm}}$

18  $2 \times 2 \times 2 \times 5 \times 7 = \underline{\hspace{2cm}}$

## Factoring to Primes

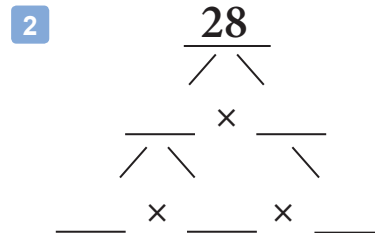
A-PF 3

**Instructions:** Factor each number down to its Prime Factorization. Use the 'factor tree' templates to help you.



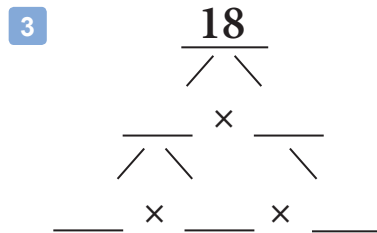
$$20 = \underline{5 \times 2 \times 2}$$

Prime Factorization



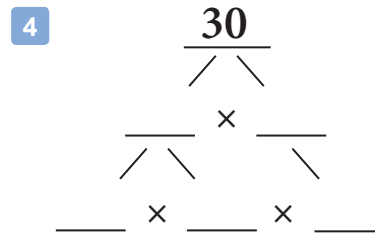
$$28 = \underline{\quad \times \quad \times \quad}$$

Prime Factorization



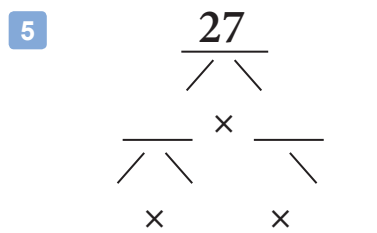
$$18 = \underline{\quad \times \quad \times \quad}$$

Prime Factorization



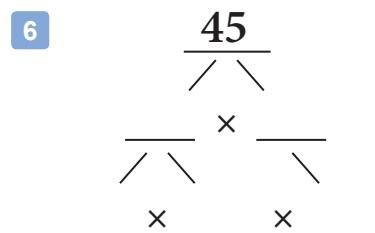
$$30 = \underline{\quad \times \quad \times \quad}$$

Prime Factorization



$$27 = \underline{\quad \times \quad \times \quad}$$

Prime Factorization



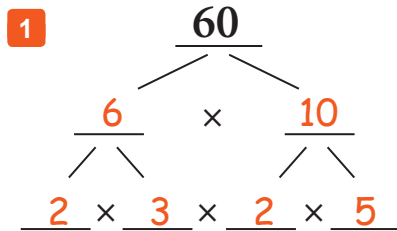
$$45 = \underline{\quad \times \quad \times \quad}$$

Prime Factorization

## Factoring to Primes - Set 2

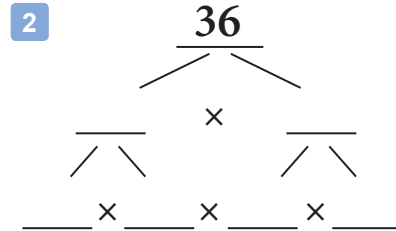
A-PF 4

**Instructions:** Factor the number down to its Prime Factorization. Use the 'factor tree' templates to help you.



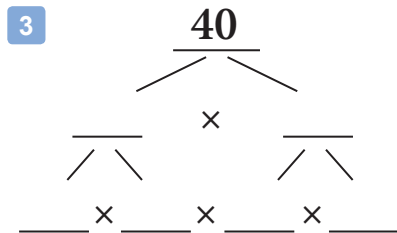
$$60 = \underline{2 \times 2 \times 3 \times 5}$$

Prime Factorization



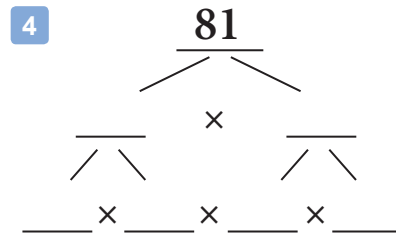
$$36 = \underline{\hspace{2cm}}$$

Prime Factorization



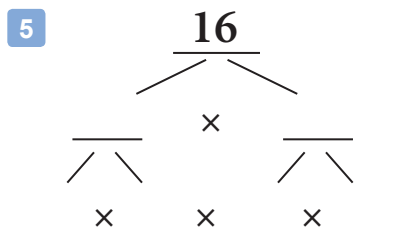
$$40 = \underline{\hspace{2cm}}$$

Prime Factorization



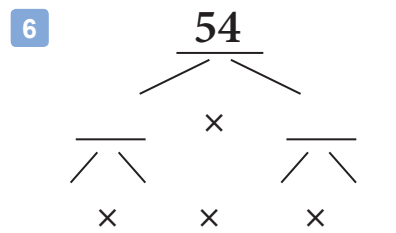
$$81 = \underline{\hspace{2cm}}$$

Prime Factorization



$$16 = \underline{\hspace{2cm}}$$

Prime Factorization



$$54 = \underline{\hspace{2cm}}$$

Prime Factorization

## More Prime Factorization Practice

A-PF 5

**Instructions:** Factor each number down to its Prime Factorization. For each problem, make a 'factor tree' on some scratch paper to help you get the right answer.

1  $40 = \underline{2 \times 2 \times 2 \times 5}$   
Prime Factorization

2  $50 = \underline{\hspace{2cm}}$   
Prime Factorization

3  $32 = \underline{\hspace{2cm}}$   
Prime Factorization

4  $72 = \underline{\hspace{2cm}}$   
Prime Factorization

5  $100 = \underline{\hspace{2cm}}$   
Prime Factorization

6  $150 = \underline{\hspace{2cm}}$   
Prime Factorization

7  $175 = \underline{\hspace{2cm}}$   
Prime Factorization

8  $66 = \underline{\hspace{2cm}}$   
Prime Factorization

9  $270 = \underline{\hspace{2cm}}$   
Prime Factorization

10  $102 = \underline{\hspace{2cm}}$   
Prime Factorization

11  $160 = \underline{\hspace{2cm}}$   
Prime Factorization

## Prime Factorization and Exponent Notation

A-PF 6

**Review:** Exponents are used to show repeated multiplication. For example, if you want to multiply the number 2 together 3 times, you could write  $2 \times 2 \times 2$ , but you could also use Exponent Notation and just write  $2^3$ . The small '3' means multiply this number by itself 3 times. Here are a few examples so you can see the pattern.

$$3^2 = 3 \times 3$$

$$4^4 = 4 \times 4 \times 4 \times 4$$

$$5^3 = 5 \times 5 \times 5$$

$$2^5 = 2 \times 2 \times 2 \times 2 \times 2$$

**Instructions:** Rewrite the Prime Factorization shown using Exponent Notation.

1  $2 \times 2 \times 2 \times 5 =$   $2^3 \times 5$

2  $2 \times 2 \times 3 \times 3 =$  \_\_\_\_\_

3  $2 \times 2 \times 2 \times 2 =$  \_\_\_\_\_

4  $2 \times 2 \times 5 \times 5 =$  \_\_\_\_\_

5  $2 \times 2 \times 3 \times 3 \times 7 =$  \_\_\_\_\_

6  $2 \times 2 \times 2 \times 2 \times 7 =$  \_\_\_\_\_

7  $2 \times 2 \times 2 \times 5 \times 5 =$  \_\_\_\_\_

8  $2 \times 2 \times 3 \times 5 \times 7 =$  \_\_\_\_\_

9  $2 \times 2 \times 2 \times 3 \times 3 \times 3 \times 3 =$  \_\_\_\_\_

10  $2 \times 2 \times 2 \times 3 \times 3 \times 7 \times 7 =$  \_\_\_\_\_

11  $2 \times 3 \times 3 \times 3 \times 5 \times 7 \times 7 =$  \_\_\_\_\_

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

## Prime or Composite?

A-PF 7

**Instructions:** In this list of every whole number up to 100, circle any Prime Numbers that you know. Then, use the answer key and circle any Prime Numbers that you may have missed. All the numbers that are not circled are Composite Numbers! (NOTE: This is an advanced exercise and should be considered optional.)

1	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	35
36	37	38	39	40
41	42	43	44	45
46	47	48	49	50
51	52	53	54	55
56	57	58	59	60
61	62	63	64	65
66	67	68	69	70
71	72	73	74	75
76	77	78	79	80
81	82	83	84	85
86	87	88	89	90
91	92	93	94	95
96	97	98	99	100