math Antics Worksheets

Name: _____

Date: _____

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

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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. $2 \times 2 =$ 4
2. $3 \times 3 =$ 9
3. $2 \times 3 =$ 6
4. $2 \times 5 =$ 10
5. $2 \times 2 \times 3 =$ 12
6. $3 \times 5 =$ 15
7. $2 \times 2 \times 2 =$ 8
8. $5 \times 5 =$ 25
9. $2 \times 3 \times 3 =$ 18
10. $2 \times 3 \times 5 =$ 30
11. $3 \times 3 \times 3 =$ 27
12. $3 \times 3 \times 5 =$ 45
13. $2 \times 2 \times 3 \times 3 =$ 36
14. $2 \times 3 \times 5 \times 7 =$ 210
15. $2 \times 3 \times 3 \times 3 =$ 54
16. $2 \times 2 \times 2 \times 3 \times 7 =$ 168
17. $2 \times 2 \times 3 \times 5 =$ 60
18. $2 \times 2 \times 2 \times 5 \times 7 =$ 280

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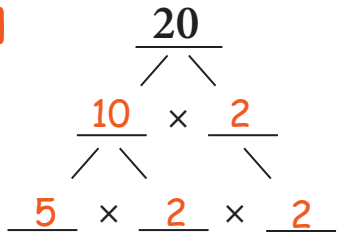
Factoring to Primes

A-PF 3

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

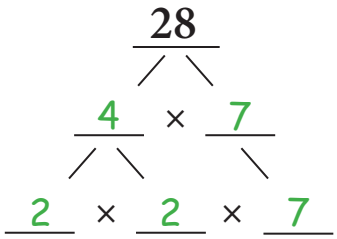
NOTE: Factor tree steps may vary, but the final 'prime factorization' should match this answer key.

1



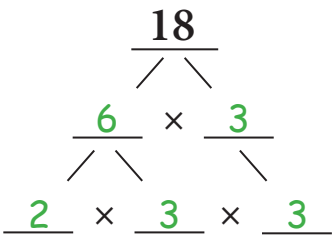
20 = 5 x 2 x 2
Prime Factorization

2



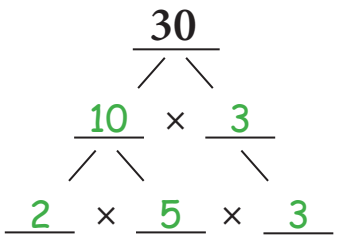
28 = 2 x 2 x 7
Prime Factorization

3



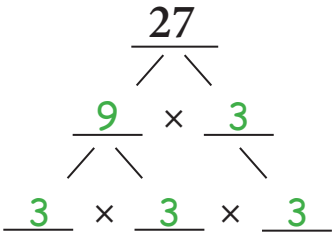
18 = 2 x 3 x 3
Prime Factorization

4



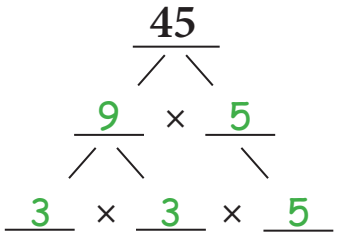
30 = 2 x 5 x 3
Prime Factorization

5



27 = 3 x 3 x 3
Prime Factorization

6



45 = 3 x 3 x 5
Prime Factorization

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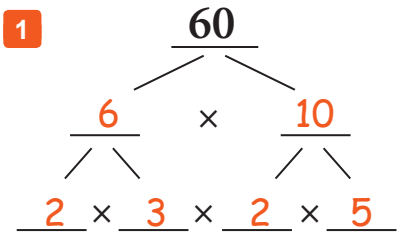
Factoring to Primes - Set 2

A-PF 4

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

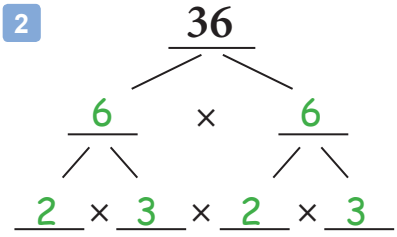
NOTE: Factor tree steps may vary, but the final 'prime factorization' should match this answer key.

1



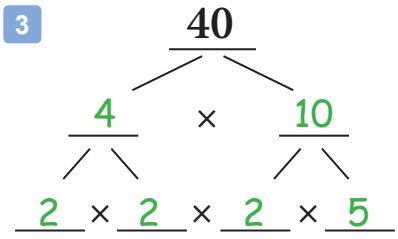
60 = 2 x 2 x 3 x 5
Prime Factorization

2



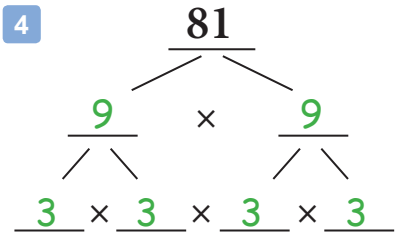
36 = 2 x 2 x 3 x 3
Prime Factorization

3



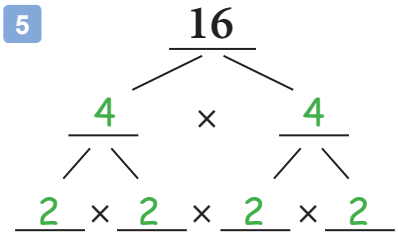
40 = 2 x 2 x 2 x 5
Prime Factorization

4



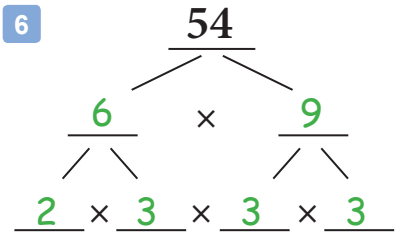
81 = 3 x 3 x 3 x 3
Prime Factorization

5



16 = 2 x 2 x 2 x 2
Prime Factorization

6



54 = 2 x 3 x 3 x 3
Prime Factorization

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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. $40 =$ 2 x 2 x 2 x 5 — Prime Factorization
2. $50 =$ 2 x 5 x 5 — Prime Factorization
3. $32 =$ 2 x 2 x 2 x 2 x 2 — Prime Factorization
4. $72 =$ 2 x 2 x 2 x 3 x 3 — Prime Factorization
5. $100 =$ 2 x 2 x 5 x 5 — Prime Factorization
6. $150 =$ 2 x 3 x 5 x 5 — Prime Factorization
7. $175 =$ 5 x 5 x 7 — Prime Factorization
8. $66 =$ 2 x 3 x 11 — Prime Factorization
9. $270 =$ 2 x 3 x 3 x 3 x 5 — Prime Factorization
10. $102 =$ 2 x 3 x 17 — Prime Factorization
11. $160 =$ 2 x 2 x 2 x 2 x 2 x 5 — Prime Factorization

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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.

$3^2 = 3 \times 3$ $\quad\quad$ $4^4 = 4 \times 4 \times 4 \times 4$

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

Instructions: Rewrite the Prime Factorization shown using Exponent Notation.

1. $2 \times 2 \times 2 \times 5 =$ $2^3 \times 5$
2. $2 \times 2 \times 3 \times 3 =$ $2^2 \times 3^2$
3. $2 \times 2 \times 2 \times 2 =$ 2^4
4. $2 \times 2 \times 5 \times 5 =$ $2^2 \times 5^2$
5. $2 \times 2 \times 3 \times 3 \times 7 =$ $2^2 \times 3^2 \times 7$
6. $2 \times 2 \times 2 \times 2 \times 7 =$ $2^4 \times 7$
7. $2 \times 2 \times 2 \times 5 \times 5 =$ $2^3 \times 5^2$
8. $2 \times 2 \times 3 \times 5 \times 7 =$ $2^2 \times 3 \times 5 \times 7$
9. $2 \times 2 \times 2 \times 3 \times 3 \times 3 \times 3 =$ $2^3 \times 3^4$
10. $2 \times 2 \times 2 \times 3 \times 3 \times 7 \times 7 =$ $2^3 \times 3^2 \times 7^2$
11. $2 \times 3 \times 3 \times 3 \times 5 \times 7 \times 7 =$ $2 \times 3^3 \times 5 \times 7^2$
12. $2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 3 =$ $2^6 \times 3$

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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