Name _____

Date _____

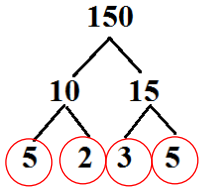
Prime Factorization

Preparing for LCM & GCF

Directions: Use a factor tree to find the prime factorization. Match the letter with the answer key to solve the question. Show work on all problems.

Factor Tree

- Start with any two factors.
- Divide the factors by any two numbers and repeat until all numbers are prime.
- Circle all prime numbers and write the answer in exponent form, least to greatest.



$2 \times 3 \times 5^2$

What was Australia's original name?

D 12	**L** 108	**W** 99	**Y** 45
T 120	**G** 156	**N** 56	**B** 104
E 18	**K** 420	**I** 81	**N** 72
L 144	**O** 100	**A** 80	**H** 150

Answer Key

= $2^3 \times 7$

= 2×3^2

= $3^2 \times 11$

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

= $2^2 \times 5^2$

= $2^4 \times 3^2$

= $2^2 \times 3^3$

= $2^4 \times 5$

= $2^3 \times 3^2$

= $2^2 \times 3$

Psst...

Remember, an even number is always divisible by 2.

Multiplying the prime factors should always equal the starting number.

ANSWER KEY

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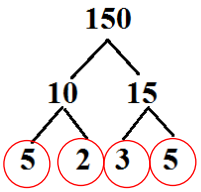

$2 \times 3 \times 5^2$

What was Australia's original name?

D 12 $2^2 \times 3$	**L** 108 $2^2 \times 3^3$	**W** 99 $3^2 \times 11$	**Y** 45 $3^2 \times 5$
T 120 $2^3 \times 3 \times 5$	**G** 156 $2^2 \times 3 \times 13$	**N** 56 $2^3 \times 7$	**B** 104 $2^3 \times 13$
E 18 2×3^2	**K** 420 $2^2 \times 3 \times 5 \times 7$	**I** 81 3^4	**N** 72 $2^3 \times 3^2$
L 144 $2^4 \times 3^2$	**O** 100 $2^2 \times 5^2$	**A** 80 $2^4 \times 5$	**H** 150 $2 \times 3 \times 5^2$

Answer Key

N = $2^3 \times 7$

E = 2×3^2

W = $3^2 \times 11$

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

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

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

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

A = $2^4 \times 5$

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

D = $2^2 \times 3$

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