

## Grade 10 FMP Introduction to Unit 3: Factors and Products

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Write down all factors for the following integers:

24	
100	
36	1, 2, 3, 4, 6, 9, 12, 18, 36
8	

Draw a prime factor tree for each integer. Write the result of the tree below the each tree.

20	75
620	110
858	780

**Number facts:** it is helpful in this unit to know the following number facts. Evaluate:

$2^0 =$	$2^6 =$	$3^0 =$	$4^0 =$	$5^0 =$	$2^2 \times 3^2 \times 5 =$
$2^1 =$	$2^7 =$	$3^1 =$	$4^1 =$	$5^1 =$	$5 \times 2^2 \times 3^2 =$
$2^2 =$	$2^8 =$	$3^2 =$	$4^2 =$	$5^2 =$	$2 \times 3 \times 5 =$
$2^3 =$	$2^9 =$	$3^3 =$	$4^3 =$	$5^3 =$	$2 \times 3 \times 2 \times 3 =$
$2^4 =$	$2^{10} =$	$3^4 =$	$4^4 =$	$5^4 =$	$2^3 \times 5 =$
$2^5 =$	$2^2 \times 3^2 \times 5 =$	$3^5 =$	$4^5 =$	$5^5 =$	$5^3 \times 5 =$

**Exponent laws:** it is helpful to be able to apply these exponent laws:

$a^m \times a^n = a^{m+n}$	$a^m \div a^n = a^{m-n}$
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Simplify and evaluate:

$2^3 \times 2^4 =$	$2^7 = 128$	$3^2 \times 3^3 =$	$=$	$2^3 \times 3 \times 3^4 \div 2^2 =$
$2^9 \div 2^7 =$	$=$	$5^{12} \div 5^{10} =$	$=$	$\frac{2^7 \cdot 3^{10} \cdot 5^4}{2^4 \cdot 3^8 \cdot 5^3} =$

**Factor Algebraic Expressions:**

In this unit we will factor more complicated algebraic expressions. However, the principle is the same as for linear expressions. Factor the following linear expressions:

$12x + 8 =$
$6 + 9x = 3(2 + 3x)$
$12x - 12 =$
$-9 - 45x =$
$-4x - 6 =$
$-25 + 20x$