Factoring Day 1

Homework PreAP

Name Key

Date _____ Period _____

The greatest common factor (GCF) of two or more integers is the greatest number that is a factor of both the integers. EX: The GCF of 12 and 30 is 6.

The distributive property has been used to multiply a polynomial by a monomial. It can also be used to express a polynomial in factored form. Compare the two columns in the table below.

Multiplying	Factoring
$3(a + b) = 3a + 3b$	$3a + 3b = 3(a + b)$
$x(y - z) = xy - xz$	$xy - xz = x(y - z)$
$6x(2x + 1) = 6x(2x) + 6x(1)$ $= 12x^2 + 6x$	$12x^2 + 6x = 6x(2x) + 6x(1)$ $= 6x(2x + 1)$

I. Complete.

1. $9a + 18b = 9(\underline{a} + 2b)$

2. $12mn + 80m^2 = 4m(3n + \underline{20m})$

3. $7c^3 - 7c^4 = 7c^3(\underline{1} - c)$

4. $4xy^3 + 16x^2y^2 = \underline{4xy^2}(y + 4x)$

II. Factor each polynomial by finding the GCF.

5. $24x + 48y$

$\underline{24}(\underline{x} + \underline{2y})$

6. $9x^2 - 3x$

$\underline{3x}(\underline{3x} - \underline{1})$

7. $45s^3 - 15s^2$

$\underline{15s^2}(\underline{3s} - \underline{1})$

8. $q^3 - 13q^2 + 22q$

$\underline{q}(\underline{q^2} - \underline{13q} + \underline{22})$

9. $2a^3 + 4a^2b + 2ab^2$

$2a(a^2+2ab+b^2)$

10. $12a^3b + 96a^2b + 84ab$

$12ab(a^2+8a+7)$

11. $x^5 + 4x^4 + 23x^3 + x$

$x(x^4+4x^3+23x^2+1)$

12. $30mn^2 + m^2n - 6n$

$n(30mn+m^2-6)$

13. $2x^2 + 14x + 24$

$2(x^2+7x+12)$

14. $-64x^2 - 8x + 16$

$-8(8x^2+x-2)$