

Algebra I  
11.4 Worksheet #2  
Monomial Factoring

NAME: \_\_\_\_\_  
DATE: \_\_\_\_\_ HOUR: \_\_\_\_\_

**State whether each number is prime or composite.  
If the number is composite, find its prime factorization.**

1. 28                      2. 61                      3. 112                      4. 86

**Factor each expression completely.**

5. -34                      6. -150                      7.  $56pq$                       8.  $-108(cd)^2$   
 $-1 \cdot 2 \cdot 17$

**Find the GCF of the given monomials.** Use scrap paper as needed.

9. -45, 15                      10. 169, 13                      11. -20, 440  
12.  $49x, 343x^2$                       13.  $4a^7b, 28ab$                       14.  $96y, 12x, -8y$

**Factor each polynomial.**

1.  $3s^2 + 9s - 3$   $3(s^2 + 3s - 1)$                       2.  $5v^4 - 15v^2 + 125v$  \_\_\_\_\_  
 $3 \cdot s \cdot s + 3 \cdot 3 \cdot s - 3$   
3.  $12g^2h - 4gh^2$  \_\_\_\_\_                      4.  $24q^5 - 36q^2$  \_\_\_\_\_

**Find the GCF of the given monomials.** Use scrap paper as needed.

1. 4, 12                      2. 10, 15  
3.  $24d^2, 30c^2d$                       4. 18, 3  
5.  $-20gh, 36g^2h^2$                       6.  $30a^2, 42a^3, 54a^3b$

**State whether each number is prime or composite. If the number is composite, find its prime factorization.**

7. 89                      8. 39

**Factor each expression completely. Do not use exponents.**

9.  $-30d^2e$                       10.  $22m^2n$

A polynomial that does not have a common monomial factor is called a \_\_\_\_\_ polynomial.

A polynomial that does have a common monomial factor is called a \_\_\_\_\_ polynomial.

**Complete.**

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

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

3.  $7c^3 - 7c^4 = 7c^3(\underline{\hspace{2cm}} - c)$

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

**Factor each polynomial.** Use scrap paper as needed.

5.  $24x + 48y$

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

7.  $q^4 - 18q^3 + 22q$

$2 \cdot 2 \cdot 2 \cdot 3x + 2 \cdot 2 \cdot 2 \cdot 2 \cdot 3y$

$24(x + 2y)$

8.  $a + 8a^2b - ab$

9.  $55p^2 - 11p^7 + 44p^5$

10.  $14c^3 - 42c^5 - 49c^4$

$a + 2 \cdot 2 \cdot 2 \cdot a \cdot a \cdot b - a \cdot b$

$a(1 + 8ab - b)$

11.  $4m + 6n - 8mn$

12.  $14y^3 - 28y^2 + y$

13.  $48w^2z + 18wz^2 - 36wz$

$2 \cdot 2 \cdot m + 2 \cdot 3 \cdot n - 2 \cdot 2 \cdot 2 \cdot m \cdot n$

$2(2m + 3n - 4mn)$

14.  $9x^2 - 3x$

15.  $96ab + 12a^2b - 84ab^3$

16.  $45s^3 - 15s^2$

17.  $18b^2a - 4ba + 7ab^2$

18.  $12p^3q^2 - 18p^2q^2 + 30p$

19.  $-x^5 - 4x^4 + 23x^3 - x$

**Factor each polynomial by finding the GCF.** Use scrap paper as needed.

1.  $3x - 12$   $\underline{3 \cdot x - 2 \cdot 2 \cdot 3 = 3(x - 4)}$

2.  $8z^2 - 4z$  \_\_\_\_\_

3.  $5x^2 - 5x - 20$   $\underline{= 5(x^2 - x - 4)}$   
 $\underline{5 \cdot x \cdot x - 5 \cdot x - 2 \cdot 2 \cdot 5}$

4.  $q^6 - q^3$  \_\_\_\_\_

5.  $9x^2 + 36x + 15$  \_\_\_\_\_

6.  $12s^2 - 6s + 8$  \_\_\_\_\_

7.  $100 - 20d^3 + 10d$  \_\_\_\_\_

8.  $7b^4 + 7b^2$  \_\_\_\_\_

9.  $16t^2 + 32t$  \_\_\_\_\_

10.  $60c^3 - 45c^2 + 15c$  \_\_\_\_\_

11.  $2z^4 - z^3 + 5z^2$  \_\_\_\_\_

12.  $24s^4 - 15s^3 + 9s^2$  \_\_\_\_\_