

Name: \_\_\_\_\_ Class: \_\_\_\_\_

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| Total Grade: _____ / 40 |
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**Algebra II: Practice Test 4**

1) Short Answer, each question should be answered using complete sentences: (1 pt each)

a) What should we check for first when factoring a polynomial?

\_\_\_\_\_

b) After factoring out a common term, if the expression is a factorable binomial, which method of factoring should be used?

\_\_\_\_\_

c) What is the difference between a binomial expression and a trinomial expression? \_\_\_\_\_

d) Explain two different ways you can factor an expression with four terms.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

e) Is the expression  $(6x - 2)(x + 4)$  fully factored? If not, what would the fully factored form be?

\_\_\_\_\_

2) Fill in the blanks: (1 pt each)

a)  $(x + y)^2 = x^2 + \underline{\hspace{2cm}} + y^2$

b)  $(\underline{\hspace{2cm}})^2 = x^2 - 2xy + y^2$

c)  $(x + y)(x - y) = x^2 \square y^2$

d)  $(x + y)^3 = x^3 + 3x^2y + \underline{\hspace{2cm}} + y^3$

e)  $(x - y)^3 = x^3 - \underline{\hspace{2cm}} + 3xy^2 - y^3$

3) Factor the following expressions: (2 pts each)

a)  $3x^2 - 27x$

b)  $4a^2 - 9b^2$

c)  $4a^2 - 9ab - 9b^2$

d)  $4t^2 - 100$

e)  $3a(t + 2) - 2(2 + t)$

f)  $4 - 20n + 25n^2$

g)  $81 + 108y + 36y^2$

h)  $(p - q)^2 - 4r^2$

i)  $a^2 - 2ab + b^2 - 4c^2$

j)  $x^2 - 3x - xy + 3y$

k)  $2ax - a^2 - x^2$

1)  $(a - b)^2 + (a - b)$

4) Write the polynomial form of: (2 pts each)

a)  $(5x - 2y)^3$

b)  $(4x + 7)^2$

c)  $(3x + 2)(3x - 2)$

**Answer Key:**

- 1.a) Check to see if there is a common term.
- 1.b) You should use the difference of two squares.
- 1.c) A binomial has two terms and a trinomial has three terms.
- 1.d) You could check for a hidden trinomial grouping and then do the difference of two squares or you could factor by grouping.
- 1.e) No,  $2(3x-1)(x+4)$
- 2.a)  $2xy$
- 2.b)  $x-y$
- 2.c)  $-$
- 2.d)  $3xy^2$
- 2.e)  $3x^2y$
- 3.a)  $3x(x-9)$
- 3.b)  $(2a+3b)(2a-3b)$
- 3.c)  $(a-3b)(4a+3b)$
- 3.d)  $4(t+5)(t-5)$
- 3.e)  $(t+2)(3a-2)$
- 3.f)  $(2 - 5n)^2$
- 3.g)  $9(3 + 2y)^2$
- 3.h)  $(p-q-2r)(p-q+2r)$
- 3.i)  $(a-b+2c)(a-b-2c)$
- 3.j)  $(x-3)(x-y)$
- 3.k)  $-(a - x)^2$  or  $-(x - a)^2$  or  $(x + a)(a - x)$
- 3.l)  $(a-b)(a-b+1)$
- 4.a)  $125x^3 - 150x^2y + 60xy^2 - 8y^3$
- 4.b)  $16x^2 + 56x + 49$
- 4.c)  $9x^2 - 4$