Name_____ Period____ Date_____
Algebra 2: Review Worksheet A 2008-2009
Topic 8: Polynomials and Polynomial Functions

Directions: Calculators are not allowed. Simplify your answers as much as possible. Show your work on a separate sheet of paper and attach.

1) Subtract: $(5x^2-3x+4)-3(2x^2+4x-1)$

2) Subtract: $(-4x^2+7x-3)-4(3x^2-3x-2)$

3) Multiply: $-2x^4(5x^2+3x-4)$

4) Multiply: $-3x^2(4x^2-7x-1)$

5) Multiply: $(x-3)(-3x^2+4x-2)$

6) Multiply: $(x+4)(-x^2-5x+3)$

7) Multiply: $(x+8)(x-8)$

8) Multiply: $(x+5)(x-5)$

9) Multiply: $(3x^2+4)(3x-4)$

10) Multiply: $(4x^2+1)(4x-1)$

11) Factor completely: $2x^2-5x-12$

12) Factor completely: $5x^2-13x-6$

13) Factor completely: x^3+8

14) Factor completely: x^3+64

15) Factor completely: $4x^2+12x-40$

16) Factor completely: $3x^2-12x-36$

17) The total area of a rectangle is $25x^2-4y^6$. Which factors could represent the length times width?

18) The total area of a rectangle is $49x^2-9y^4$. Which factors could represent the length times width?

19) Factor completely: $(x-5)^2-9y^2$

20) Factor completely: $(x+3)^2-4y^2$

21) The polynomial $x^3-x^2-10x+6$ has 2 factors. One of the factors is $(x+3)$. Find the other factor.

22) The polynomial x^3+2x^2-5x+2 has 2 factors. One of the factors is $(x-1)$. Find the other factor.

23) If $f(x)=3x^2-5x+2$, find f(2).

24) If $f(x)=4x^2+2x-3$, find f(1).

25) If $f(x)=x^2-5$ and $g(x)=x+3$, find f(g(x)) and simplify.

26) If $f(x) = x^2 + 1$ and $g(x) = x - 2$, find f(g(x)) and simplify.

27) If $f(x) = x^2 + 4x - 3$ and $g(x) = 3(x-1)^2$, find f(x) + g(x) and simplify.

28) If $f(x) = x^2 - 2x + 5$ and $g(x) = 2(x-2)^2$, find f(x) + g(x) and simplify.

29) Find the coefficient of the 4th term in the expansion of $(x+2)^6$.

30) Find the coefficient of the 2nd term in the expansion of $(2x-1)^4$.

31) How many terms does the binomial expansion of $(x^3 - 2y^2)^{56}$ have?

32) How many terms does the binomial expansion of $(x^4 + 6y)^{15}$ have?

33) Find all of the real solutions: $x^2 - 3x = 10$

34) Find all of the real solutions: $x^2 - 5x = -4$

35) Find all of the real solutions: $x^3 + 4x^2 - 9x - 36 = 0$

36) Find all of the real solutions: $x^3 + 3x^2 - x - 3 = 0$

37) Express as a polynomial in standard form: $(4x+1)^3$

38) Express as a polynomial in standard form: $(x+4)^3$

39) Express as a polynomial in standard form: $(x-2)^3$

40) Express as a polynomial in standard form: $(3x-1)^3$

41) Find the quotient by using long division. Express any remainder in fractional form:
$(4x^3 + 2x - 1) \div (x^2 - 3x)$

42) Find the quotient by using long division. Express any remainder in fractional form:
$(x^3 - 5x + 4) \div (x^2 + 4x)$

43) Express $(x-1)^7$ as a polynomial in standard form.

44) Express $(x+1)^5$ as a polynomial in standard form.

45) Factor completely: $2x^4 - 162$

46) Factor completely: $3x^4 - 3$

47) Factor completely: $5x^3 - 15x^2 + 2x - 6$

48) Factor completely: $3x^3 + 6x^2 - 2x - 4$

49) Factor completely: $x^3 - 27y^3$

50) Factor completely: $64x^3 - y^3$