Algebra 1-2 UNIT 6 Polynomials Study Guide

Name: _____

Date: _____ Period: _____

Write the polynomial in standard form (Be sure to simplify if necessary)***.***
Then name the polynomial based on its degree and number of terms.

	Standard Form	Name by Degree	Name by Number of Terms
1) $3n^2 - 9 + 7n^3 - 4n^2$			
2) $-9x + 7x^2 - 10 + 9x$			
3) $-3n^2 - 10n + 3n^2 + 9$			

4)   a. Is it possible to have a linear trinomial with one variable? Yes or No   (circle answer)
        Explain why or why not?

   b. Given $5x^3 - 4x^2 + 7x - 18$, answer the following:

   What is the coefficient on the x^3? _____   Coefficient on the x^2? _____   Coefficient on the x? _____

For problems 5-10, simplify the expression. Write each answer in standard form.

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

6) $(4m - m^2) + (5m^2 + m^4)$

7) $(5 + 7x^3 + 3x^2) + (-12 + 5x + 6x^2)$

8) $(4 + 3x^2 + 8x^3) - (-7x^3 - 12x^5 + 6x^2)$

9) $3t^2(2t^2 - 6t + 8)$

10) $4y(y^3 - 6y + 3)$

11) The number of Commercial C and Education E internet web sites can be modeled by the following equations, where t is the number of the years.

   Commercial Sites (in million): $C = 0.321t^2 - 1.036t + 0.698$
   Education Sites (in million): $E = 0.099t^2 - 0.120t + 0.295$

   Write a simplified polynomial that models the ***total*** number of commercial and education sites.

Find the product. Write each answer in standard form.

12) $(2n + 3)(n - 2)$

13) $(2r - 2)(-r - 7)$

14) $(3x - 4)^2$

15) $(x^2 - 2x - 8)(-x^2 + 3x - 5)$

16) $(x + 7)(2x^2 - 6x + 2)$

17) The Robertsons put a rectangular pool with a stone walkway around it in their backyard. The total length of the pool and is 3 times the total width. The walkway is 2 ft wide all around.

a) Draw and label a diagram of the pool and walkway.

Write a simplified expression for the following:

b) Area of the pool

c) Area of the pool and walkway

d) Area of just the walkway

Find the GCF of the following expressions:

18) $24x^5 - 32x^2$

19) $14a^2b - 18a^3b^2 + 10a^4$

GCF: _____

GCF: _____

Factor completely the following expressions.

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

21) $12a^2 + 10a - 12$

Factor completely the following expressions.

22) $9x^2 - 121$ 23) $3y^3 - 3y^2 - 90y$

24) The area of a rectangular garden is given by the trinomial $x^2 - x - 6$.

       a.   What are the possible dimensions of the rectangle?

       b.   Explain what steps you used to determine these dimensions

25) A box has a volume given by the trinomial $x^3 - 10x^2 + 16x$. What are the possible dimensions of the box? Use factoring.

Error Analysis: Each problem below has been solved incorrectly. Identify the error and correct it.

Problem	Incorrect Solution	Error & Correct Solution
26) Simplify: $(4x^2 + 6x) - (5x^2 - 8x - 3)$	$-x^2 - 2x - 3$	
27) Multiply: $3x(x^2 - 5)$	$3x^3 - 5$	
28) Multiply: $(x - 5)(3x + 1)$	$3x^2 + 16x + 5$	
29) Factor Completely: $6m^3n - 12m^2n - 3mn$	$3m(2m^2n - 4mn - 3n)$	
30) Factor Completely: $3x^3y - 6x^2y^2 - 3xy$	$3xy(x^2 - 2xy)$	
31) Factor Completely: $9x^2 - 4$	$(3x + 4)(3x - 4)$	
32) Factor Completely: $x^2 - 5x + 6$	$(x - 6)(x + 1)$	
33) Factor Completely: $2x^2 - 7x - 4$	$(2x - 2)(x + 2)$	