

Name: _____

Block: _____

**Algebra 2H: Polynomials and Polynomial Equations
Group A**

There are 20 questions, each worth 2pts.

Extra-credit: There are 2 additional questions, worth 1pt each. These might be on previous units.

You have 40 minutes to complete the work (more if you have accommodations).

=== Start of test



- 1) Given the expression $10x^4 - 2x^1 + 1$, answer the below questions:
- List all the terms of the polynomial: _____
 - List the coefficient and degree of each term: _____
 - The degree of the polynomial is: _____
 - Circle most appropriate name: Binomial , Trinomial , Polynomial

2) Simplify $(5yx^2 + 3xy^2 + 4) - (8 - 2x^2y + 4y^2x)$

3) Simplify $(3x - 2y)^2$

4) Simplify $(2x + 12) \cdot 3 \cdot (2x - 6)$

5) Simplify $(2x^3 + 3x^2)^2$

6) Simplify $(3a + 5)(2a^2 + 2a - 3)$

7) Simplify $(x^2y + 5y^2)(x^4y^2 + 25y^4 - 5x^2y^3)$

8) Factor $u^2 - 10u + 25$

9) Factor $18xy + 2xy^3 - 12xy^2$

10) Factor $u^4 - 81$

11) Factor $y^6x^3 + 27u^3$

12) Factor $30y^2 - 7y - 4$

13) Factor $x^2 + 2.5x - 6$

14) Factor $x^4y^2 - 2 + x^2y$

15) Factor $4x^2 + 12x + 9 - a^2$

16) Factor $xy^2 + 10 + 2x + 5y^2$

17) Factor $4x^6 - 4x^3 - 15$

18) Solve $m^4 - 9m^2 = 0$

19) Solve $n^2 = 6 + n$

20) Add one to the product of two consecutive odd numbers. and you will get ten times their average.

a) Write an equation that describes the above word problem, and then simplify it.

b) Factor the resulting equation and find the numbers.

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Extra-credit (each question is 1 point)

(There will be one harder factoring question, and then on previous material)

Question on the material: See challenge questions in the book.

One question, very similar to one of the following:

21) Lines: Find the equation for the line going through the point (3,2) with slope =4. Give your result in slope-intercept form.

22) Functions: Given the following definitions of functions f and g:

$$f(x) = 3x^2 - 2 \quad , \quad g(x) = 5x + 4 \quad ,$$

find $f(g(x - 1))$

23) for each of the following two sequences, determine whether it is geometric, Arithmetic, or neither.

a) $\frac{1}{2}, \frac{3}{4}, \frac{9}{8}, \frac{27}{16}, \dots$

b) $1, 4, 9, 16, \dots$

24) System of equations: Solve the following system

$$\begin{cases} 2x + 3y = 8 \\ 3x + 2y = 7 \end{cases}$$

=== End