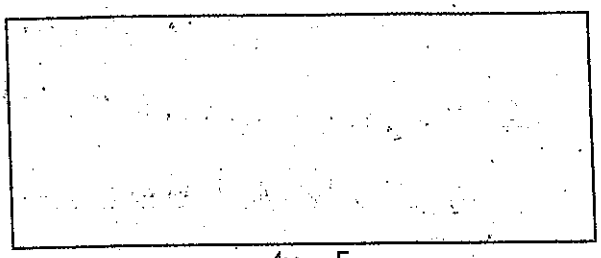
Unit 6 Study Guide - Exponents and Polynomials Name Key

NC Math 1

1. $(2m^4 + 5m^3 - 3m^2) + (-2m^3 + 2m^2 - 2) =$ $2m^4 + 3m^3 - 1m^2 - 2$

2. $(7x^2 - 4x + 5) - (3x^2 + x - 2) =$ $4x^2 - 5x + 7$

3. What is the area of the rectangle below?

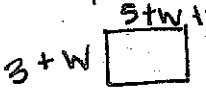


$20x^2 - 25x + 12x - 15$

$20x^2 - 13x - 15$

$(5x+3)(4x-5)$

4. Margie's flower garden has a length 5 feet greater than its width, w. She wants to make it larger, so she will add 3 feet to both the height and width. Which equation represents the new area, N, of the floor of the cage?



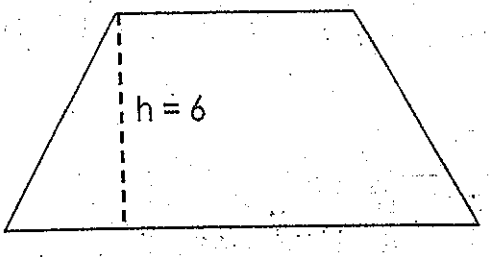
$(w+8)(w+3)$

$w^2 + 3w + 8w + 24$

$w^2 + 11w + 24$

5. Simplify $5^{-3} = \frac{1}{5^3} = \frac{1}{125}$

6. $b_1 = 2x + 1$



$b_2 = x - 3$

Find the area of the trapezoid.
(Hint: find the area formula from your notes)

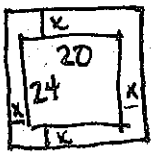
$A = \frac{1}{2}(h)(b_1 + b_2)$

$= \frac{1}{2}(6)(2x + 1 + x - 3)$

$= 3(3x - 2)$

$= 9x - 6$

7. Roger created a 20- by 24- foot patio surrounded by a tile border. The border is x feet wide on all four sides. The area of the patio with the border can be represented by the expression $(2x + 20)(2x + 24)$. Which expression is equivalent to the area of the patio in square feet?



	2x	+24
2x	$4x^2$	48x
+20	40x	480

$4x^2 + 88x + 480$

8. Which polynomial is equivalent to $(4n - 5)^2$?

$(4n-5)(4n-5)$

$16n^2 - 20n - 20n + 25$

$16n^2 - 40n + 25$

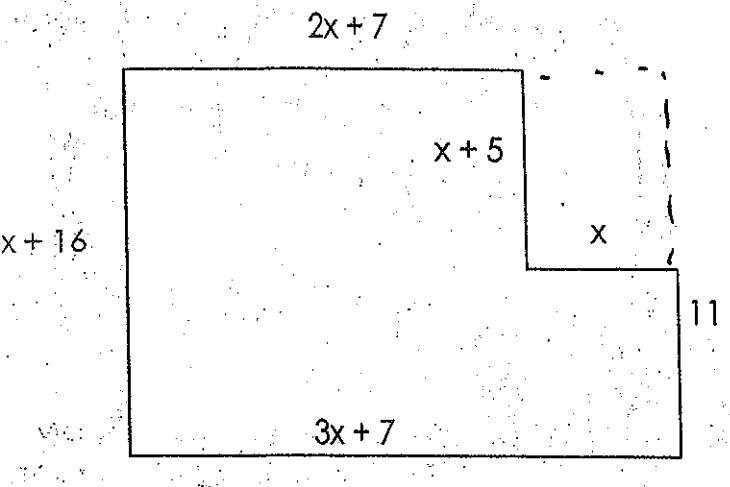
9. What is the sum of $(9p - 4) + (2p + 5)$?

$11p + 1$

10. $(11x^3 - 8x^2 + 9) - (-2x^3 - 4x^2 - 2) =$

$11x^3 - 8x^2 + 9 + 2x^3 + 4x^2 + 2 = \boxed{13x^3 - 4x^2 + 11}$

11. Which expression represents the area of the composite figure shown below?



bigger - small chunk

$(x+16)(3x+7) - x(x+5)$

$3x^2 + 7x + 48x + 112 - x^2 - 5x$

$\boxed{2x^2 + 50x + 112}$

12. Simplify the expression: $-2x^3 + 7x^2 - 4x - 1 + (3x^3 - 7x^2 + 4x - 1)$

$x^3 - 2$

13. Find the area of a circle with a radius of $2x - 1$. (keep π in your answer)

$A = \pi r^2$ $\pi(2x-1)^2$

$\pi(2x-1)(2x-1)$ $\boxed{\pi(4x^2 - 4x + 1)}$

14. A rectangle has a length of $x + 3$ inches and a width 2 inches less that the length. If the width were doubled, what would be the area of the new rectangle?

$l = x + 3$ $\times 2$ $(x+3)(2x+2)$

$w = x + 3 - 2 = (x+1)2$ $\boxed{2x^2 + 8x + 6}$

15. Use the box method to write an expression for the product of $(3x + 1)(x^2 - 4x - 1)$.

$3x^3 - 12x^2 - 3x + x^2 - 4x - 1$ $\boxed{3x^3 - 11x^2 - 7x - 1}$

16. Hannah made and sold x glass jars one week. Her profit, P, in dollars, is calculated using the formula $P = R - C$, where R represents revenue and C represents costs. If $R = 50x - 0.3x^2$ and $C = 250 + 2x$, which expression represents her profit P in dollars?

$P = 50x - 0.3x^2 - (250 + 2x)$ $P = -0.3x^2 + 48x - 250$

17. Find the missing value if $(x + 9)(x - ?) = x^2 + 7x - 18$.

(A) 2 B. -2 C. 18 D. -18

18. Evaluate $3^3 \cdot 3^5 = 3^8$

19. Evaluate $8^3 \div 8^8 = 8^{-5} = \frac{1}{8^5}$

20. Evaluate $5b^0 = 5 \cdot 1 = 5$