

Math I Unit 5 Study Guide

Answer Key

Teacher: _____

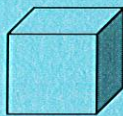
Student Name: _____

DIRECTIONS: Do all work on separate scratch paper. Your work must be neat, well organized, complete, and lead to the answer you give, circle your answers. Copy your answers to the appropriate place provide on this test.

OBJ. 1: Multiplying Polynomials

- Simplify: $4x^2(3x^4 - 5x^2 + 2x) - 2x(5x^2 + 3x^5 - x^3)$
 $12x^6 - 20x^4 + 6x^3 - 10x^3 - 6x^6 - 2x^4$
- Simplify: $(4x + 9y)^2$

- Find the area of a rectangle with a length of $2t^2 - 3$ and a width of $4t + 9$.
- Find the volume of the cube to the right.



$(x-3)(x^2-6x+9)$

OBJ. 2: Factoring Polynomials

- Factor: $144x^2 - 121y^2$
- $x^2 - 5x - 6$
- Factor Completely:** $3r^2 - 75$
- $5x + 6x^2 - 4$ $6x^2 + 5x - 4$ $(2x-1)(3x+4)$

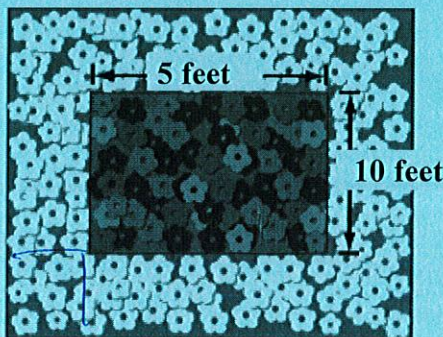
OBJ. 3: Application

- The area of a triangle can be found using the formula $A = \frac{1}{2}bh$. If the height of the triangle is $x^2 + 2$ and the base is $2x^2 - 4x + 1$. Find the expression for the area of the triangle.

$(x+1)(x+2)(2x-1)$

- The area of a rectangle is $x^2 - 10x - 24$, write the polynomial expression that represents the perimeter of the rectangle.

11. The Lush Landscaping Company is involved in a project for the city. They will be enlarging the garden in front of City Hall. The current dimensions of the garden are 5 feet long by 10 feet wide. The company plans to make the garden area larger by planting a border of flowers all the way around the existing garden. The border will have the same width around the entire garden. Let x represent the width of the border. Write a polynomial expression that represents the area of the border.



- There are three consecutive odd integers. The product of the larger two integers is equivalent to the sum of the first integer squared and 98. What are the integers?

$x^2 + 6x + 8 = 98$
 $6x = 90$
 $x = 15$

Objective	Score
1	A B NY
2	A B NY
3	A B NY
4	A B NY
5	A B NY

ANSWERS:

1.	$6x^6 - 18x^4 - 4x^3$
2.	$16x^2 + 72xy + 81y^2$
3.	$8t^3 + 18t^2 - 12t - 27$
4.	$x^3 - 9x^2 + 27x - 27$
4/4 = 100 3/4 = 80 0-2 = NY	
5.	$(12x-11y)(12x+11y)$
6.	$(x-6)(x+1)$
7.	$3(x+5)(x-5)$
8.	$(2x-1)(3x+4)$
4/4 = 100 3/4 = 80 0-2 = NY	
9.	$x^4 - 2x^3 + \frac{5}{2}x^2 - 4x + 1$
10.	$4x - 20$
11.	$4x^2 + 30x$
12.	15, 17, 19
4/4 = 100 3/4 = 80 0-2 = NY	
13.	$-\frac{3y^2}{2x^9}$
14.	# of ribbons to get her money back break even
15.	D: 0 to 72 candy bars R: 1-12 to \$78
16.	Chase is 23 y.o.
4/4 = 100 3/4 = 80 0-2 = NY	
17.	$2x(4x-1)(x+3)$
18.	$w^2 + 10w + 24$
19.	$5(x-2)(x-3)$
20.	$2x^2 + 4x - 4$
4/4 = 100 3/4 = 80 0-2 = NY	

OBJ. 4: Review

13. Simplify: $\frac{12x^{-2}y^6}{-8x^3x^4}$

$\frac{3y^6}{-2x^5x^4} = \frac{3y^6}{-2x^9}$

14. Janet's profit from her ribbon sale can be represented using the function: $P(r) = 2r - 18$. What does the x-intercept mean in the context of the problem?

of ribbons to make a \$0 profit
get her money back

15. Michael plans to sell candy bars at the ballgame this Saturday. His mom spent \$12.00 to buy 72 candy bars, and she expects him to pay her back. He plans to sell the candy bars for \$1.25. Write a reasonable domain and range for this situation.

16. Chase is 5 more than twice Eli's age. Connor is 4 less than Eli's age. If the combined age of the boys is 37, how old is Chase.

Chase: $2E + 5$
Eli: E
Connor: $E - 4$

$4E + 1 = 37$
 $E = 9$

Chase is 23

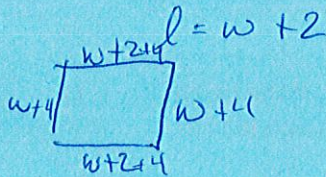
OBJ. 5: Calculator Inactive : Math 1 Unit 5

Name _____

17. A rectangular prism has a volume of $8x^3 + 22x^2 - 6x$. Factor to find expressions that could represent the length, width, and height of the prism?

$2x(4x^2 + 11x - 3)$

18. The floor of a rectangular cage has a length 2 feet greater than its width, w . Jason will increase both dimensions of the floor by 4 feet. Write an expression to represent the new area of the floor of the cage.



$(w+6)(w+4)$

19. Factor Completely: $5x^2 - 25x + 30$

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

20. Simplify: $2(x + 1)^2 - 6$

$2x^2 + 4x + 2 - 6$

$2x^2 + 4x - 4$