

Name: _____

Date: _____

UNIT #7 – POLYNOMIALS
REVIEW QUESTIONS**Part I Questions**

1. Which of the following is the value of the polynomial $4x^3 + 2x^2 + 3x + 7$ when $x = 10$? Try to do this without your calculator.

- (1) 3,782 (3) 4,237
(2) 1,298 (4) 743

2. Which of the following is a polynomial expression? _____

- (1) $2^x + x + 3$ (3) $\frac{1}{x} + \frac{1}{x^2} + \frac{1}{x^3}$
(2) $x^2 + 2x + 7$ (4) $\sqrt{x} + 10$ _____

3. What is the sum of the polynomials $8x^2 - 7x + 3$ and $2x^2 + 10x - 5$?

- (1) $10x^2 + 3x - 2$ (3) $6x^2 + 17x - 8$
(2) $16x^2 - 70x - 15$ (4) $10x^4 + 3x^2 - 2$ _____

4. The product of the monomial $-2x^3$ with the binomial $4x^2 - 2$ is equivalent to

- (1) $-6x^6 - 4x^3$ (3) $2x^5 - 4x^3$
(2) $-8x^6 + 4x^3$ (4) $-8x^5 + 4x^3$ _____

5. If the length of a rectangle is represented by $x + 8$ and its width is represented by $2x + 3$ then its area could be expressed as which of the following polynomials?

- (1) $2x^2 + 24$ (3) $2x^2 + 19x + 24$
(2) $2x + 11$ (4) $2x^2 + 11x + 16$ _____

6. Which of the polynomials results from squaring the binomial $x - 4$?

- (1) $x^2 + 16$ (3) $x^2 - 8x - 16$
(2) $x^2 - 16$ (4) $x^2 - 8x + 16$ _____



7. Which of the following expressions is equivalent to

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

(1) $2x^2 - 29$

(3) $x^2 - 3x - 50$

(2) $x^2 + 50$

(4) $2x^2 - 13x + 29$

8. Which of the following is the greatest common factor of the monomials $10x^2y^5$ and $15xy^3$?

(1) $5xy$

(3) $25x^3y^8$

(2) $25x^2y^{15}$

(4) $5xy^3$

9. Which of the following shows the binomial $10x^3 + 40x$ factored incorrectly?

(1) $10(x^3 + 4x)$

(3) $10x(x^2 + 4)$

(2) $5x^2(2x + 8)$

(4) $5x(2x^2 + 8)$

10. Which of the following is *not* a factor of the binomial $7x^2 - 28x$?

(1) $x - 4$

(3) 7

(2) x

(4) -4

11. The binomial $x^2 - 64$ can be written equivalently as

(1) $(x-8)(x-8)$

(3) $(x-4)(x+16)$

(2) $(x+8)(x-8)$

(4) $(x+4)(x-16)$

12. The trinomial $2x^2 - 3x - 20$ can be factored as the product of $x - 4$ and which of the following binomials?

(1) $2x + 5$

(3) $x - 5$

(2) $2x - 7$

(4) $x + 5$



Free Response Questions

13. Find the difference when the polynomial $-5x^2 + 3x + 8$ is subtracted from the polynomial $2x^2 + 4x + 1$.

14. Consider the product of $(x + 2)(x + 3)$

(a) Write this product in simplest trinomial form.

(b) Test the equivalency of your expression in part (a) with the value $x = 4$.

(c) Explain how your expression in part (a) can help quickly find the product 12 and 13.

15. Write the product below in standard polynomial form. Show the steps that you use in simplifying the product.

$$(x + 8)(x - 3)(2x + 1)$$

16. Jeremiah found the product of 31 and 29 as 899 by finding 30^2 and subtracting 1. Explain how Jeremiah could justify this approach.



17. The expression shown below can be written as the product of $(x+4)$ with another binomial. Determine that binomial. Show how you arrived at your answer.

$$(x+4)(x-2) + (x+4)(x+7)$$

18. Write the following expression as the product of two binomials.

$$(x+5)(2x+11) - (x+5)(x-2)$$

19. Completely factor each of the following expressions.

(a) $5x^2 - 20x - 105$

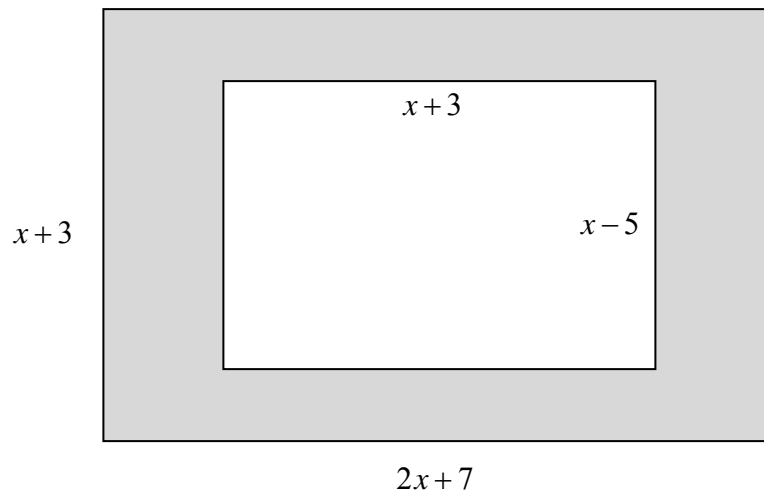
(b) $3x^3 - 75x$

(c) $x^4 - 13x^2 + 36$

(d) $8x^2 - 10x - 12$



20. A smaller rectangle is centered within a larger rectangle such that the shaded area is created as shown below. The dimensions of both rectangles are shown in terms of x .



- (a) Determine the area of the larger rectangle as a trinomial in terms of x .
- (b) Determine the area of the smaller rectangle as a trinomial in terms of x .
- (c) Find the area of the shaded region as a trinomial in terms of x .
- (d) The area of the shaded region can be written as the product of the binomial $x + 3$ and what other binomial? Show how you arrived at your answer.
21. Simplify the expression below and write it in standard polynomial form.

$$(3x + 2)(x - 4) - (x + 5)(x - 1)$$

