

# Review for Test #12 - Polynomials and Factoring

Name: \_\_\_\_\_ Period: \_\_\_\_\_ Date: \_\_\_\_\_

1.) Write the following expressions in descending order. Then, indicate the **degree** of the expression.

a.)  $12x^7 + 9x - 3 + 2x^9 + 8x^3$

b.)  $18x^4 - 9x^6 + 12 - 4x$

2.) Write an *example* of each of the following vocabulary words.

a.) Monomial \_\_\_\_\_

b.) Binomial \_\_\_\_\_

c.) Trinomial \_\_\_\_\_

Simplify:

3.)  $(3x^2y + 2xy - 9xy^2) + (4x^2y - 7xy + 13xy^2)$  4.)  $(7x^2 + 4) + (x^2 - 2x - 4)$

5.)  $(3x^2y + 2xy - 9xy^2) - (4x^2y - 7xy + 13xy^2)$  6.)  $(7x^2 + 4) - (x^2 - 2x - 4)$

7.)  $(a^3b^4c)(ab^{-2}c^{13})$

8.)  $c^2d(2c^4d^2 + 9cd^3 - 8de)$

9.)  $(12x^9)^2$

10.)  $-5x(4x^2 - 8x + 3)$

11.)  $(5r^8)^3$

12.)  $(4^9)^5$

13.)  $5^4 \cdot 5^9$

14.)  $\frac{2^9}{2^3}$

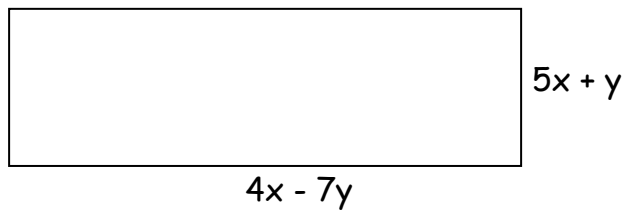
15.)  $\frac{c^7}{c^4}$

16.)  $\frac{-12n^4 - 21n^3 + 3n^2}{-3n^2}$

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

18.)  $(3x+4)(5x+7)$

19.) Refer to the rectangle below.



a.) Find the perimeter of the figure in terms of  $x$  and  $y$ .

b.) Find the area of the figure in terms of  $x$  and  $y$ .



20.) If a square has a side of  $(3x + 2)$ , what is the area of the square?

21.) If a square has a side of  $(5x - 4)$ , what is the area of the square?

Multiply the following expressions.

22.)  $(2x + 5)^2$

23.)  $(3x - 7)(3x + 7)$

24.)  $(4x - 5)(2x^2 - 3x + 6)$

25.)  $(4x^2 - 9x + 5)^2$

*Factor the following problems.*

26.)  $6x^2 + 12x$

27.)  $x^2 - 5x - 36$

28.)  $x^2 - 3x - 18$

29.)  $x^2 + 7x + 6$

30.)  $x^2 + x - 12$

31.)  $x^2 - 5x - 14$

32.)  $x^2 - 10x + 21$

33.)  $x^2 - x - 90$

34.)  $x^2 + 3x - 28$

35.)  $8x^2y - 12xy^2$

36.)  $32a^2b^3c^4 + 64a^4b^3c^2$

37.)  $x^2 - 18x + 17$

38.)  $x^2 - x - 6$

39.)  $3x^2y^3 + 2x^4y^3$

40.)  $x^2 + x - 20$

41.)  $x^2 - 4x - 32$

## Answers to Review for Test #12 - Polynomials and Factoring

- 1.) a.)  $2x^9 + 12x^7 + 8x^3 + 9x - 3$ , 9<sup>th</sup> degree      b.)  $-9x^6 + 18x^4 - 4x + 12$ , 6<sup>th</sup> degree
- 3.)  $7x^2y - 5xy + 4xy^2$       4.)  $8x^2 - 2x$
- 5.)  $-x^2y + 9xy - 22xy^2$       6.)  $6x^2 + 2x + 8$
- 7.)  $a^4b^2c^{14}$       8.)  $2c^6d^3 + 9c^3d^6 - 8c^2d^2e$
- 9.)  $144x^{18}$       10.)  $-20x^3 + 40x^2 - 15x$
- 11.)  $125r^{24}$       12.)  $4^{45}$
- 13.)  $5^{13}$       14.)  $2^6$
- 15.)  $c^3$       16.)  $4n^2 + 7n - 1$
- 17.)  $x^2 - 6x - 16$       18.)  $15x^2 + 41x + 28$
- 19.) a.)  $18x - 12y$   
b.)  $20x^2 - 31xy - 7y^2$
- 20.)  $9x^2 + 12x + 4$       21.)  $25x^2 - 40x + 16$
- 22.)  $4x^2 + 20x + 25$       23.)  $9x^2 - 49$
- 24.)  $8x^3 - 22x^2 + 39x - 30$       25.)  $16x^4 - 72x^3 + 121x^2 - 90x + 25$
- 26.)  $6x(x + 2)$       27.)  $(x - 9)(x + 4)$
- 28.)  $(x - 6)(x + 3)$       29.)  $(x + 6)(x + 1)$
- 30.)  $(x + 4)(x - 3)$       31.)  $(x - 7)(x + 2)$
- 32.)  $(x - 7)(x - 3)$       33.)  $(x - 10)(x + 9)$
- 34.)  $(x + 7)(x - 4)$       35.)  $4xy(2x - 3y)$
- 36.)  $32a^2b^3c^2(c^2 + 2a^2)$       37.)  $(x - 17)(x - 1)$
- 38.)  $(x - 3)(x + 2)$       39.)  $x^2y^3(3y + 2x^2)$
- 40.)  $(x + 5)(x - 4)$       41.)  $(x - 8)(x + 4)$

