

NAME: _____ Score _____ /100
Please print

SHOW ALL YOUR WORK IN A NEAT AND ORGANIZED FASHION

Circle T or F, whichever is correct. (2 pts each)

1. T F A trinomial is a polynomial.
2. T F A binomial polynomial may be a quadratic polynomial.
3. T F If x and y are real numbers and $xy = 0$, then $x = 0$ or $y = 0$.
4. T F The degree of a polynomial is its leading term.
5. T F $-3^2 = 9$.
6. T F To solve $(x - 3)(x + 5) = 15$, solve $x - 3 = 15$ and $x + 5 = 15$.
7. T F The number 13.783×10^{23} is written in scientific notation.
8. T F $(a^m)^n = a^{m+n}$.
9. T F A term is a polynomial.
10. T F Two polynomials are equal if they have the same degree.

Fill in each of the blanks to make the statements true. (2 pts each)

11. The _____ of a polynomial is a polynomial obtained by changing the sign of each term of the polynomial.
12. The sum of two polynomials is a _____ obtained by adding like terms of the two polynomials.
13. A first degree polynomial is called a _____ polynomial.
14. The degree of a polynomial is the degree of the _____ term.
15. The _____ term of a polynomial is the term with largest degree.
16. A term is a _____, a _____, or a product of _____ and _____.
17. Factoring a polynomial is a _____ and _____ procedure.
18. To factor a number or algebraic expression means to write the number or expression as a _____.
19. $(a + b)^2 =$ _____.
20. $a^2 - b^2 =$ _____.

a) x^3

b) $3x^2 - 8x + 5$

c) 9

d) $4x + 5 = 9$

e) $\sqrt{3}x^5 + 2x^3 - \frac{3}{2}x^2 - x + 28$

f) $3x^{-5} + 5x^2 + 3$

g) $3^{-2}x^2 + 5x + \frac{2}{3}$

h) $x^4 + x^3 + 5$

j) $(x + 4)(x + 3)$

k) $\sqrt{x^4 + x^2 + 16}$

21. (10 points) For this question refer to the list a – k above. In each case circle the correct response.

a. Which items in the above list are polynomials?

a b c d e f g h j k

b. Which items in the above list are trinomials?

a b c d e f g h j k

c. Which items in the above list are quadratic polynomials?

a b c d e f g h j k

d. Which items in the above list are polynomials with all natural number coefficients?

a b c d e f g h j k

e. Which items in the above list are terms?

a b c d e f g h j k

22. (5 points) Evaluate each of the following:

a) $7^0 =$ _____

b) $-7^0 =$ _____

c) $(-4)^2 =$ _____

d) $3x^0 =$ _____

e) What is the base in the exponential expression -3^4 ? _____

23. (10 points) Rewrite each expression as directed.

a. Write $64^{-1}y^6x^{-5}$ with positive exponents only.

b. Write $\frac{5^{37}x^{-3}}{y^4}$ with negative exponents only.

c. Simplify and write your answer with positive exponents only $(-2^{-2}y)^3$

d. Write 2.853×10^{-7} in standard notation _____

e. Write 47,850,000 in scientific notation _____

24. **(5 points)** Write the sum of $3x^5$ and $-8x^5$

25. **(5 points)** Compute the product $(x + y)^2$.

26. **(5 points)** Compute the product. Write the product in scientific notation. $(33 \times 10^{-12})(4 \times 10^{-8})$

27. **(5 points)** Perform the division and write your result in scientific notation. $\frac{1.2 \times 10^9}{0.6 \times 10^{-5}}$

28. **(5 points)** Factor $4x^2 - 25$

29. **(5 points)** Factor $x^2 + 10x + 16$

30. **(5 points)** Factor $5x^2 + 16x + 3$

31. **(5 points)** Factor $6x^2 - 13x - 8$

32. **(5 points)** Factor $x^2 - 2xy + y^2$

33. **(5 points)** Multiply $(5x^3 + 7)(2x^2 - 2x + 1)$. Add (combine) all like terms. Write your answer in descending order of exponents.

34. **(5 points)** Use long division for polynomials to divide $6x^3 - 16x^2 + 17x - 6$ by $3x - 2$