

Nagyantok High School
FIRST PERIODICAL EXAMINATION IN MATHEMATICS VIII

Name: _____ Date: _____ Score: _____

I. Multiple Choice: Encircle the letter of your answer.

1. The product of $(xy - 1)$ and $(xy + 8)$ is
 a. $x^2y^2 - 8$ b. $x^2y^2 - 9xy - 8$ c. $x^2y^2 + 7xy - 8$ d. $x^2y^2 - 7xy - 8$
2. The expression $(x + y)^3$ is identical to
 a. $x^3 + y^3$ b. $(x + y)(x^2 - xy + y^2)$ c. $x^3 + 3x^2y + 3xy^2 + y^3$ d. $(x + y)(x^2 + xy + y^2)$
3. The product of $(5x + 7y)$ and $(5x - 7y)$ is
 a. $25x^2 - 70xy - 49y^2$ b. $25x^2 + 70xy - 49y^2$ c. $25x^2 + 49y^2$ d. $25x^2 - 49y^2$
4. The expression $(4y^3 + 9x^2)^2$ equals
 a. $16y^6 + 81x^4$ b. $16y^6 + 72y^3x^2 + 81x^4$ c. $16y^5 + 72y^3x^2 + 81x^4$ d. $16y^6 + 36y^3x^2 + 81x^4$
5. The greatest common monomial factor in $3x^2 - 6x$ is
 a. 3 b. $3x$ c. $6x^2$ d. $x - 2$
6. The factored form of $y(2x - 3) + 4(2x - 3)$ is
 a. $(y + 4)(2x - 3)^2$ b. $(y + 4)(2x - 3)$ c. $4y(2x - 3)^2$ d. $4y(2x - 3)$
7. The factored form of $9x^2 - 25y^2$ is
 a. $(9x - y)(x + 25y)$ b. $(3x - 5y)(3x - 5y)$ c. $(9x + 5y)(x - 5y)$ d. $(3x + 5y)(3x - 5y)$
8. The factored form of $4a^2 - 20ab + 9b^2$ is
 a. $(2a - b)(2a - 9b)$ b. $(2a - b)(2a + 9b)$ c. $(2a + b)(2a - 9b)$ d. $(2a + b)(2a + 9b)$
9. The expression $81x^2 - 90x + 25y^2$ is an example of a
 a. sum of two squares b. difference between 2 squares
 c. sum of two cubes d. perfect square trinomial
10. The factored form of the algebraic expression $y^2(2x - 3) - 4(2x - 3)$ is
 a. $y^2 - 4(2x - 3)^2$ b. $(2x - 3)(y^2 - 4)$ c. $(y + 2)(y - 2)(2x - 3)$ d. $(y^2 - 4)(2x - 3)^2$
11. The product of $(\frac{1}{3}a - 5b)$ and $(\frac{1}{3}a + 5b)$ is
 a. $\frac{1}{9}a^2 - 25b^2$ b. $\frac{1}{9}a - \frac{1}{25}b$ c. $\frac{1}{6}a^2 - 10b^2$ d. $\frac{1}{6}a - 10b$
12. All numbers below are composite except
 a. 42 b. 53 c. 105 d. 154
13. The factored form of $1 - 0.49x^2$ is
 a. $(1 + 0.7x)(1 - 0.7x)$ b. $(1 + 0.07x)(1 - 0.07x)$ c. $(1 + 0.49x)(1 - x)$ d. $(1 + 0.49x)(1 + x)$
14. The expression $(x - 3)^3$ is identical to
 a. $x^3 - 27$ b. $(x - 3)(x^2 - 3x + 9)$ c. $(x + 3)(x^2 - 6x + 9)$ d. $x^3 - 9x^2 + 27x - 27$
15. $2x^2y(-3xy^3 + 7xy^2) =$
 a. $-6x^2y^3 + 14x^2y^2$ b. $-5x^2y^3 + 9x^2y^2$ c. $-6x^3y^4 + 14x^3y^3$ d. $-5x^3y^4 + 9x^3y^3$
16. The expression $(0.3y + 0.7)^2$ equals
 a. $0.09y^2 + 0.42y + 0.49$ b. $0.9y^2 + 4.2y + 4.9$ c. $9y^2 + 42y + 49$ d. $0.09y^2 + 0.49$
17. $(0.2m^2 + 3)(0.2m^2 - 3) =$
 a. $0.4m^4 - 9$ b. $0.04m^4 - 9$ c. $0.4m^2 - 6$ d. $0.04m^2 - 6$
18. Find the missing term: $(x + \underline{\hspace{1cm}})(3x + \underline{\hspace{1cm}}) = 3x^2 + 27x + 24$
 a. 6, 4 b. 4, 6 c. 8, 3 d. 12, 2
19. The sides of a rectangle with an area of $x^2 + 3x + 2$ are
 a. $(x + 1)$ and $(x + 2)$ b. $(x - 1)$ and $(x - 2)$ c. $(x - 1)$ and $(x + 2)$ d. $(x + 1)$ and $(x - 2)$
20. The length of a rectangle with an area of $(x^2 + 10x)$ square units if the width is x units is
 a. x^2 b. $x^2 + 10$ c. $x + 10$ d. $(x + 10)^2$
21. Which of the following expressions is a rational algebraic expression?
 a. $\frac{x}{\sqrt{3y}}$ b. $\frac{3c^{-3}}{\sqrt{(a+1)^0}}$ c. $4y^{-2} + z^{-3}$ d. $\frac{a-b}{a+b}$
22. What is the value of a non-zero polynomial raised to 0?
 a. constant b. zero c. undefined d. cannot be determined

23. What will be the result when a and b are replaced by 2 and -1, respectively, in the expression

$$(-5a^{-2}b)(-2a^{-3}b^2)?$$

a. $\frac{27}{16}$

b. $\frac{5}{16}$

c. $\frac{3}{7}$

d. $\frac{2}{7}$

24. $-(-3x^2y)^3$ equals

a. $27x^6y^3$

b. $-27x^6y^3$

c. $9x^5y^4$

d. $-9x^5y^4$

25. $(-2xy)^3(3x^3y)^2$ equals

a. $72x^9y^5$

b. $-72x^9y^5$

c. $-24x^9y^5$

d. $-18x^9y^5$

26. $\left(\frac{-4x^2}{3y}\right)^2 =$

a. $-\frac{16x^4}{9y^2}$

b. $\frac{16x^4}{9y^2}$

c. $-\frac{4x^4}{3y^2}$

d. $\frac{4x^4}{3y^2}$

27. $-\left(\frac{3x}{2y}\right)^2\left(\frac{2x^4}{3y^2}\right) =$

a. $\frac{3x^6}{2y^4}$

b. $-\frac{3x^6}{2y^4}$

c. $-\frac{x^8}{y^3}$

d. $\frac{x^8}{y^3}$

28. $\frac{10x^{-4}}{100y^{-2}}$ is equivalent to

a. $\frac{1y^2}{90x^4}$

b. $\frac{90y^2}{x^4}$

c. $\frac{y^2}{10x^4}$

d. $\frac{10y^2}{x^4}$

29. The reduced form of $\left(\frac{4}{5}\right)^3$ is

a. $\frac{64}{125}$

b. $\frac{125}{64}$

c. $-\frac{64}{125}$

d. $-\frac{125}{64}$

30. $\frac{3^{-3}}{3^{-7}}$ equals

a. 3^{-10}

b. 3^{10}

c. 3^{-4}

d. 3^4

31. $(x^{-3}y^{-4})^0$ is equivalent to

a. x^3y^4

b. $\frac{1}{x^3y^4}$

c. 0

d. 1

32. The expression $(2x^{-3}y)^{-2}$ written with positive exponent equals

a. $\frac{1}{(2x^{-3}y)^2}$

b. $\frac{x^6}{4y^2}$

c. $\frac{2}{x^6y^2}$

d. $\frac{x^5}{(4y)^2}$

33. $(3x^k)(5x^6) =$

a. $15x^{6k}$

b. $15x^{k/6}$

c. $15x^{k+6}$

d. $15x^{k-6}$

34. What rational algebraic expression is the same as $\frac{x^2-1}{x-1}$?

a. $x+1$

b. $x-1$

c. 1

d. -1

35. Angelo can complete his school project in x hours. What part of the job can be completed by Angelo after 3 hours?

a. $x+3$

b. $x-3$

c. $x/3$

d. $3/x$

36. Aaron was asked by his teacher to simplify $\frac{a^2-1}{a^2-a}$ on the board. He wrote his solution on the board this way:

$$\frac{a^2-1}{a^2-a} = \frac{(a-1)(a+1)}{a(a-1)} = \frac{a+1}{a}$$

Did he arrive at the correct answer?

- a. Yes. The expressions that he crossed out are all common factors.
- b. Yes. The LCD must be eliminated to simplify the expression.
- c. No. a^2 must be cancelled out so that the answer is $1/a$.
- d. No. a is not a common factor of numerator.

37. James was asked to simplify $\frac{x^2+2x-8}{x^2-4}$. His solution is presented below.

$$\frac{x^2+2x-8}{x^2-4} = \frac{(x+4)(x-2)}{(x+2)(x-2)} = \frac{(x+4)}{(x+2)} = \frac{4}{2} = 2$$

What makes the solution of James wrong?

a. cancelling 4.

c. x^2-4 being factored out.

b. crossing out the $(x-2)$.

d. dividing out the variable x.

38. What is the value of the expression $\frac{x^{-3}yc^8}{x^2y^{-2}c^7}$ when x is 2, y is 3 and c is -2?

a. $-\frac{27}{16}$

b. $\frac{27}{16}$

c. $\frac{32}{27}$

d. $-\frac{32}{27}$

39. Your father, a tricycle driver, asked you regarding the best motorcycle to buy. What will you do to help your father?
- Look for the fastest motorcycle.
 - Canvass for the cheapest motorcycle.
 - Find an imitated brand of motorcycle.
 - Search for fuel-efficient type of motorcycle.
40. The manager of So-In Clothesline Corp. asked you, as Human Resource Officers, to hire more tailors to meet the production target of the year. What will you look in hiring a tailor?
- speed & efficiency
 - speed & accuracy
 - time conscious & personality
 - experience & personality
41. You own three hectares of land and you want to mow it for farming. What will you do to finish it at a very least time?
- Rent a small mower
 - Hire 3 efficient laborers.
 - Do kaingin.
 - Use germicide.
42. Your friend asked you to make a floor plan. As an engineer, what aspects should you consider in doing the plan?
- precise & realistic
 - layout & cost
 - logical & sufficient
 - creative & economical
43. Your SK Chairman planned to construct a basketball court. As a contractor, what will you do to realize the project?
- Show a budget proposal.
 - Make a budget plan.
 - Present a feasibility study.
 - Give a financial statement.
44. As a contractor in number 39, what is the best action to do in order to complete the project on or before the deadline but still on the budget plan?
- All laborers must be trained workers.
 - Rent more equipment and machines.
 - Add least charge equipment and machines.
 - Trained and amateur workers must be proportionate.

45-50. Read, analyze and answer the following questions.

45. What is the GCF of 8, 16, 32?

46. Simplify: $\frac{r^2 + r}{4} \cdot \frac{8}{r^2 - 1}$

47. Simplify: $\frac{(x-y)}{x^2y} \div \frac{(x-y)}{x^3y}$

48. Simplify : $(4a + 4b + 4c)^2$

49. Find the product of $\frac{a^2 - 9}{a^2 + a - 20}$ and $\frac{a^2 - 8a + 16}{3a - 9}$

50. $p - 3$ is a factor of $p^2 + p - 12$. What is the other factor?