

Due September 10, 2013

Name: \_\_\_\_\_

1. Find the sum of  $5x^3 - 3x^2 + 5$  and  $-2x^3 + 6x^2 - 5$ .
2. Perform the indicated operation:  $-5(4a - 6b)$
3. The sum of  $3x^2 + x - 7$  and  $x^2 + 10$  can be expressed as
  - A.  $4x^4 + x - 3$
  - B.  $3x^2 + x + 3$
  - C.  $3x^4 + x - 3$
  - D.  $4x^2 + x + 3$
4. Simplify by combining like terms:  
 $(5a + 3b) + 2(a - 3b)$
5. The quotient of  $\frac{-18x^6}{6x^3}$  is equal to
  - A.  $-3x^3$
  - B.  $-3x^2$
  - C.  $-12x^2$
  - D.  $-12x^3$
6. If  $15x^6y$  is divided by  $-3x^3$ , the quotient is
  - A.  $-5x^2$
  - B.  $-5x^3y$
  - C.  $5x^2$
  - D.  $5x^3y$
7. The product of  $4x^4$  and  $5x^5$  is
  - A.  $9x^9$
  - B.  $9x^{20}$
  - C.  $20x^9$
  - D.  $20x^{20}$
8. The quotient of  $\frac{28x^4y^2}{14xy}$  is
  - A.  $2x^3y$
  - B.  $2x^4y^3$
  - C.  $14x^3y$
  - D.  $14x^4y^2$
9. What is the product of  $3x^4$  and  $2x^3$ ?
  - A.  $5x^7$
  - B.  $6x^7$
  - C.  $6x^{12}$
  - D.  $5x^{12}$
10. The fraction  $\frac{-12x^3y^5}{3xy^3}$ ,  $x \neq 0$ ,  $y \neq 0$ , is equivalent to
  - A.  $-4x^4y^7$
  - B.  $\frac{-4x^2}{y^3}$
  - C.  $4x^2y^3$
  - D.  $-4x^2y^2$
11. Express the product  $(2x - 3)(x + 5)$  as a trinomial.
12. The expression  $(x - 4)^2$  is equivalent to
  - A.  $x^2 - 16$
  - B.  $x^2 + 16$
  - C.  $x^2 - 8x + 16$
  - D.  $x^2 + 8x + 16$
13. Express the product of  $2x - 3$  and  $x + 4$  as a trinomial.

14. Express the product  $(2x - 3)(x - 2)$  as a trinomial.
15. Express the product  $(2x - 1)(3x + 4)$  as a trinomial.
16. Express the product of  $2a + 1$  and  $a + 5$  as a trinomial.
17. Factor:  $x^2 + 5x - 24$
18. Express  $x^2 + 5x - 6$  as the product of two binomials.
19. Factor:  $x^2 - 6x - 7$
20. Factor:  $b^2 - 4$
21. Factor:  $x^2 - 5x + 6$
22. Factor:  $x^2 - 16x + 48$
23. The product of two factors is  $x^2 - x - 20$ . If one of the factors is  $x - 5$ , what is the other factor?
24. Factor:  $4x^2 - 9$
25. Written in factored form, the binomial  $a^2b - ab^2$  is equivalent to
- A.  $ab(a - b)$       B.  $(a - b)(a + b)$   
 C.  $a^2(b - b^2)$       D.  $a^2b^2(b - a)$
26. Factor:  $a^2 - 9$
27. Express  $4x^2 - 25$  as the product of two binomials.
28. One factor of the expression  $x^2y^2 - 16$  is
- A.  $xy - 4$     B.  $xy - 8$     C.  $x^2 - 4$     D.  $x^2 + 8$
29. The greatest common factor of  $4a^2b$  and  $6ab^3$  is
- A.  $2ab$       B.  $2ab^2$   
 C.  $12ab$       D.  $24a^3b^4$
30. The expression  $9x^2 - 100$  is equivalent to
- A.  $(9x - 10)(x + 10)$     B.  $(3x - 10)(3x + 10)$   
 C.  $(3x - 100)(3x - 1)$     D.  $(9x - 100)(x + 1)$
31. Which expression is equivalent to  $9x^2 - 16$ ?
- A.  $(3x + 4)(3x - 4)$     B.  $(3x - 4)(3x - 4)$   
 C.  $(3x + 8)(3x - 8)$     D.  $(3x - 8)(3x - 8)$

32. Which expression is equivalent to  $121 - x^2$ ?

- A.  $(x - 11)(x - 11)$       B.  $(x + 11)(x - 11)$   
C.  $(11 - x)(11 + x)$       D.  $(11 - x)(11 - x)$

33. Factored completely, the expression  $3x^3 - 33x^2 + 90x$  is equivalent to

- A.  $3x(x^2 - 33x + 90)$       B.  $3x(x^2 - 11x + 30)$   
C.  $3x(x + 5)(x + 6)$       D.  $3x(x - 5)(x - 6)$

34. The greatest common monomial factor of  $12x^2$  and  $8x^3$  is

- A.  $96x^5$       B.  $12x^2$       C.  $8x^3$       D.  $4x^2$

35. The greatest common factor of  $12x^2y^3$  and  $24xy^2$  is

- A.  $6xy$       B.  $24xy^2$       C.  $12xy^2$       D.  $2xy$

36. If  $a + b = 5$  and  $a - b = 3$ , find the value of  $a^2 - b^2$ .

37. If  $A = p + prt$ , then  $t$  equals

- A.  $\frac{A - 1}{r}$       B.  $\frac{A}{pr} - p$   
C.  $\frac{A + p}{pr}$       D.  $\frac{A - p}{pr}$

38. What value of  $k$  makes the trinomial  $x^2 - 10x + k$  a perfect square?

39. If  $(x - 3)$  and  $(x + 7)$  are the factors of the trinomial  $x^2 + ax - 21$ , what is the value of  $a$ ?

- A.  $-3$       B.  $-4$       C.  $7$       D.  $4$

40. If  $x + 2$  is a factor  $x^2 + bx + 10$ , what is the value of  $b$ ?

41. If  $12x^4 - 3x^3 + 6x^2$  is divided by  $3x^2$ , the quotient is

- A.  $9x^2 - 3$       B.  $5x^2$   
C.  $4x^2 - 3x + 2$       D.  $4x^2 - x + 2$

42. The expression  $\frac{15k^3 - 9k^2 + 3k}{3k}$ ,  $k \neq 0$ , is equivalent to

- A.  $5k^2 - 3k + 1$       B.  $5k^2 - 3k$   
C.  $15k^3 - 9k^2$       D.  $3k$

43. When  $12x^4 - 3x^3 + 6x^2$  is divided by  $3x^2$ , the quotient is

- A.  $4x^2 - 3x^3 + 6x^2$       B.  $12x^4 - 3x^3 + 2$   
C.  $9x^2 - x + 2$       D.  $4x^2 - x + 2$

44. The expression  $\frac{25m^3 + 10m^2 - 5m}{5m}$ ,  $m \neq 0$ , is equivalent to
- A.  $5m^2 + 2m - 1$       B.  $5m^2 + 2m$   
 C.  $6m$       D.  $5m^2 + 5m - 1$
45. If  $12x^2 - 3x$  is divided by  $3x$ , the quotient is
- A.  $4x - 3$     B.  $4x - 1$     C.  $3x$       D.  $4x$
46. If  $28x^3 - 36x^2 + 4x$  is divided by  $4x$ , the quotient will be
- A.  $7x^2 - 9x$       B.  $28x^3 - 36x^2$   
 C.  $7x^2 - 9x + 1$       D.  $28x^3 - 36x^2 + 1$
47. When  $5x^4 - 5x$  is divided by  $5x$ , the quotient is
- A.  $x^3$       B.  $x^5 - 1$     C.  $x^3 - 1$     D.  $5x$
48. The fraction  $\frac{-12x^3 + 4x^2 - 8x}{2x}$ ,  $x \neq 0$  is equivalent to
- A.  $-6x^2 + 2x - 4$       B.  $6x^2 + 2x - 4$   
 C.  $6x^2 - 2x + 4$       D.  $-6x^2 + 2x$
49. If  $x \neq 0$ , the expression  $\frac{x^2 + 2x}{x}$  is equivalent to
- A.  $x + 2$     B.  $2$       C.  $3x$       D.  $4$
50. When  $3x^2 - 6x$  is divided by  $3x$ , the result is
- A.  $-2x$     B.  $2x$       C.  $x + 2$     D.  $x - 2$
51. What is  $6x^3 + 4x^2 + 2x$  divided by  $2x$ ?
- A.  $3x^2 + 2x$       B.  $3x^2 + 2x + 1$   
 C.  $4x^2 + 2x$       D.  $4x^2 + 2x + 1$
52. Express in simplest form:  $\frac{45a^4b^3 - 90a^3b}{15a^2b}$
53. Expressed in simplest form,  $\frac{2x^2}{x^2 - 1} \cdot \frac{x - 1}{x}$ ,  $x \neq 1, 0, -1$ , is equivalent to
- A.  $\frac{2x}{x - 1}$     B.  $2$       C.  $\frac{2}{x}$       D.  $\frac{2x}{x + 1}$
54. Express the product in lowest terms:  
 $\frac{x^2 - x - 6}{3x - 9} \cdot \frac{2}{x + 2}$
55. When  $\frac{x + 4}{2}$  is divided by  $\frac{x^2 - 16}{8}$ , the quotient is
- A.  $\frac{x - 4}{4}$     B.  $\frac{1}{x}$       C.  $\frac{1}{x - 1}$     D.  $\frac{4}{x - 4}$
56. Perform the indicated operation and express in simplest form:  $\frac{x^2 - 16}{x^2 - x - 20} \cdot \frac{x + 4}{x - 4}$



57. Express the product in simplest form:

$$\left(\frac{a}{a^2 - 25}\right)\left(\frac{a^2 + 2a - 15}{a - 3}\right)$$

58. Which expression is undefined if  $x = 2$ ?

A.  $\frac{2}{x-2}$

B.  $\frac{x-2}{2}$

C.  $\frac{2}{x}$

D.  $(x-2)(x+2)$

59. For which value of  $x$  is the expression  $\frac{x}{x-2}$  undefined?

A. 1      B. 2      C. -2      D. 0

60. For which value of  $x$  will the fraction  $\frac{5}{2x-8}$  be undefined?

A. -4      B. 2      C. 8      D. 4

61. The expression  $\frac{1}{(x-1)(x+2)}$  is undefined if  $x$  is equal to

A. -1 or 2

B. 1 or -2

C. 0

D. -1

62. Which value of  $x$  will make the fraction  $\frac{x-3}{x+6}$  undefined?

A. 6      B. -6      C. 3      D. -3

63. The expression  $\frac{x-2}{x+3}$  is undefined when  $x$  is equal to

A. -3      B. 2      C. 3      D. -2

64. For which value of  $x$  is the fraction  $\frac{x+5}{x-1}$  undefined?

A. 1      B. -1      C. -5      D. 5