

MTH 126/127 Practice Common Final – Form C

1.  $\sqrt{16n} - \sqrt{9n} =$
- A)  $7\sqrt{n}$   
 B)  $n\sqrt{7}$   
 C)  $\sqrt{7n}$   
 D)  $\sqrt{n}$   
 E)  $\sqrt{7}$
2. If  $\frac{x-7}{3} + \frac{1}{4} = \frac{x-15}{12}$ , then  $x =$
- A)  $\frac{-40}{3}$   
 B)  $\frac{-10}{3}$   
 C) 1  
 D)  $\frac{10}{3}$   
 E)  $\frac{155}{8}$
3.  $\sqrt[3]{a} \sqrt[4]{a^3} =$
- A)  $a^{\frac{4}{7}}$   
 B)  $a^{\frac{1}{4}}$   
 C)  $a^{\frac{4}{9}}$   
 D)  $a^{\frac{13}{12}}$   
 E)  $a^{\frac{17}{12}}$
4.  $\sqrt{3}\sqrt{15} - \sqrt{20} =$
- A) 5  
 B)  $\sqrt{5}$   
 C)  $5\sqrt{5}$   
 D)  $\sqrt{65}$   
 E)  $-\sqrt{2}$
5.  $\sqrt{8x^4y^{10}} =$
- A)  $64x^8y^{20}$   
 B)  $4x^2y^5$   
 C)  $4x^2y^8$   
 D)  $2x^2y^8\sqrt{2}$   
 E)  $2x^2y^5\sqrt{2}$
6.  $(2\sqrt{3} + 1)(\sqrt{3} - 1) =$
- A)  $5 - \sqrt{3}$   
 B) 5  
 C)  $8 - \sqrt{3}$   
 D) 8  
 E)  $2 - \sqrt{3}$

7.  $4\sqrt{27} - 4\sqrt{12} =$
- A)  $\sqrt{60}$   
 B)  $4\sqrt{15}$   
 C)  $20\sqrt{3}$   
 D)  $4\sqrt{3}$   
 E)  $\sqrt{3}$
8. Rationalize the denominator and simplify:  $\frac{3 + \sqrt{3}}{\sqrt{3}} =$
- A)  $1 + \sqrt{3}$   
 B) 3  
 C)  $\frac{4}{3}\sqrt{3}$   
 D)  $3 - \sqrt{3}$   
 E) 1
9. Simplify:  $\frac{9}{\sqrt{6}} =$
- A)  $\sqrt{\frac{3}{2}}$   
 B)  $\frac{3\sqrt{6}}{2}$   
 C)  $\frac{\sqrt{6}}{9}$   
 D)  $\frac{3}{\sqrt{2}}$   
 E)  $\frac{\sqrt{2}}{3}$
10. Reduce to lowest terms:  $\frac{p^3 + 27q^3}{p + 3q}$
- A) The fraction is in lowest terms.  
 B)  $p^2 - 6pq + 9q^2$   
 C)  $p^2 + 3pq + 9q^2$   
 D)  $p^2 + 6pq + 9q^2$   
 E)  $p^2 - 3pq + 9q^2$
11.  $(2x)^0 =$
- A) 0  
 B) 1  
 C) 2  
 D) x  
 E) 2x

12.  $\left(\frac{-2^2}{b}\right)^3 \left(\frac{-b^5}{2a}\right)^2$

- A)  $-a^4b^7$
- B)  $-2a^4b^7$
- C)  $a^4b^7$
- D)  $2a^4b^8$
- E)  $2a^4b^7$

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

- A)  $xy^{\frac{1}{3}}$
- B)  $y^{\frac{1}{3}}$
- C)  $\frac{x}{y^{\frac{1}{3}}}$
- D)  $\frac{1}{y^{\frac{1}{3}}}$
- E)  $\frac{1}{1+y^{\frac{-1}{3}}}$

14. If  $x = \frac{2}{3}$ , then  $3x^{-2} =$

- A)  $\frac{1}{4}$
- B)  $\frac{4}{3}$
- C) 4
- D)  $\frac{4}{9}$
- E)  $\frac{27}{4}$

15.  $\frac{(-x)^6x^9}{(-x)^3} =$

- A)  $x^6$
- B)  $-x^6$
- C)  $x^{18}$
- D)  $-x^{18}$
- E)  $-x^{12}$

16. A solution of  $\frac{5}{y-3} - \frac{2}{y} = \frac{7}{y}$  is
- A)  $\frac{15}{4}$   
 B)  $\frac{9}{2}$   
 C)  $\frac{9}{4}$   
 D)  $\frac{27}{4}$   
 E) nonexistent
17.  $(-m^2)^3 =$
- A)  $-m^5$   
 B)  $-m^8$   
 C)  $m^6$   
 D)  $m^8$   
 E)  $-m^6$
18. Which of the two polynomials below is a perfect square?  
 I)  $4y^2 + 9$                       II)  $x^2 - 4x + 4$
- A) Both I) and II)  
 B) I) but not II)  
 C) II) but not I)  
 D) Neither I) nor II)
19. Which of the following is a factor of  $x^3 - 2x^2 - 4x + 8$  ?  
 I)  $(x + 2)$                       II)  $x - 2$
- A) Both I) and II)  
 B) I) but not II)  
 C) II) but not I)  
 D) Neither I) nor II)
20. If  $\frac{(x-2)(x+1)}{(x-3)} = 0$ , then a possible value for x is
- A) -1 or 2  
 B) 3  
 C) -1 or 3  
 D) 2 or 3  
 E) -1, 2, or 3
21. The number of pounds of copper in K pounds of 45% copper ore may be represented by:
- A) 45K  
 B)  $45K$   
 C)  $\frac{45}{K}$   
 D)  $\frac{K+45}{100}$   
 E)  $\frac{100}{K+45}$

22. If a car drives  $s$  miles in 5 hours, then its average speed in miles per hour is represented by:

- A)  $5 - s$
- B)  $5s$
- C)  $\frac{5}{s}$
- D)  $5 + s$
- E)  $\frac{s}{5}$

23.  $\sqrt[3]{y} \sqrt[3]{y^6} =$

- A)  $\sqrt[3]{y^5}$
- B)  $y$
- C)  $y^2$
- D)  $\sqrt[3]{y^2}$
- E) None of these

24.  $(2x - 3)[5(x - 1) - 3(1 + 2x)] =$

- A)  $-2x^2 - 13x + 24$
- B)  $-2x^2 - 19x + 24$
- C)  $-2x^2 - 13x - 24$
- D)  $2x^2 - 19x - 24$
- E)  $2x^2 - 13x + 24$

25.  $\frac{x}{x - 3} - \frac{3}{x + 3} =$

- A)  $\frac{1}{x - 3}$
- B) 1
- C)  $\frac{x^2 - 3}{x^2 - 9}$
- D) -1
- E)  $\frac{x^2 + 9}{x^2 - 9}$

26.  $\frac{3}{x + 2} - \frac{x}{x + 1} =$

- A)  $\frac{-x^2 + x + 3}{(x + 2)(x + 1)}$
- B)  $\frac{-x^2 + 5x + 3}{(x + 2)(x + 1)}$
- C)  $\frac{x^2 - x - 3}{(x + 2)(x + 1)}$
- D)  $\frac{-x^2 - x + 3}{(x + 2)(x + 1)}$
- E)  $\frac{3 - x}{(x + 2)(x + 1)}$

27. 
$$\frac{2x + 3y}{1 + \frac{6y}{2x - 3y}} =$$

A)  $2x + 3y$

B)  $\frac{1}{1 + 6y}$

C)  $2x - 3y$

D)  $\frac{2x^2 - 3y^2}{2x - 3y}$

E)  $4x^2 - 9y^2$

28. 
$$\frac{\left(\frac{x^2 + 2x + 1}{x^2 - 4}\right)}{\left(\frac{4x + 8}{2x + 2}\right)} =$$

A)  $-3(x + 1)$

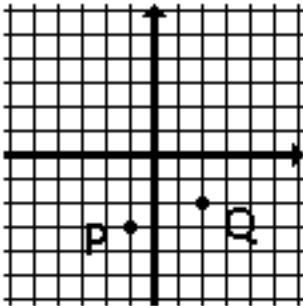
B)  $\frac{2x + 2}{x - 2}$

C)  $\frac{(x + 1)^3}{2(x + 2)^2(x - 2)}$

D)  $\frac{x^2 + 6x + 9}{x^2 + 2x - 2}$

E) 1

29. Which of the points P and Q pictured below is on the graph of  $5x - 3y - 4 = 0$  ?



A) Both P) and Q)

B) P) but not Q)

C) Q) but not P)

D) Neither P) nor Q)

30. The y intercept of the equation  $y - 3x + 2 = 4x - 8 - y$ , is

A) nonexistent

B) -2

C) -8

D) -5

E) 2

31. 
$$\frac{6x^2 + 3x}{3x} =$$

A)  $2x + 1$

B)  $6x^2$

C)  $3x$

D)  $6x^2 + 1$

E)  $5x$

32.  $\frac{x^2 + 6x + 9}{x^2 - 9} \cdot \frac{2x - 6}{2x + 8} =$

A)  $\frac{x + 3}{x + 4}$   
 B)  $\frac{2x - 3}{2x + 4}$   
 C)  $\frac{x - 3}{x + 4}$   
 D)  $\frac{x^2 + 6x + 9}{x^2 + x - 12}$   
 E)  $\frac{x^2 - 9}{(x + 3)(x + 4)}$

33.  $\frac{1 - a}{a - 2} \div \frac{a - 1}{2a - a^2} =$

A)  $-a$   
 B)  $\frac{2a}{(a - 2)(a - 1)}$   
 C)  $a$   
 D)  $a - a^2$   
 E)  $-1$

34. Reduce to lowest terms:  $\frac{1 - (2 - x)x}{(1 - x)(2 - x)} =$

A)  $1$   
 B)  $\frac{1}{1 - x} - x$   
 C)  $\frac{1}{2 - x} - \frac{x}{1 - x}$   
 D)  $\frac{1 - x}{2 - x}$   
 E)  $\frac{-x}{2 - x}$

35.  $\left(\frac{x^2 - x - 6}{4 - x^2}\right) \left(\frac{x^3 - 2}{x^2 - 8x + 15}\right) =$

A)  $\frac{x - 5}{x^2}$   
 B)  $\frac{5 - x}{x^2}$   
 C)  $\frac{x^2}{5 - x}$   
 D)  $\frac{-x^2}{x + 5}$

36. Which of the following numbers is a solution of  $t^2 - 2t^1 - 8 = 0$ ?

A)  $-4$   
 B)  $-2$   
 C)  $-\frac{1}{2}$   
 D)  $2\sqrt{2}$   
 E)  $\sqrt{2} + 1$

37. Which number is a solution of the equation  $y^{-\frac{2}{3}} = \frac{1}{4}$  ?
- A)  $\sqrt[3]{4}$   
 B)  $-2$   
 C)  $8$   
 D)  $64$   
 E)  $\frac{\sqrt{2}}{2}$
38. The solutions of  $2x^2 - 4x - 6 = 0$  are
- A)  $-1$  and  $3$   
 B)  $-2$  and  $\frac{3}{2}$   
 C)  $1$  and  $-3$   
 D)  $-\frac{3}{2}$  and  $2$   
 E)  $-\frac{1}{2}$  and  $6$
39. For what real values of  $x$  is  $7 + (x - 1)^2 = (x + 2)^2$  ?
- A) No value  
 B)  $4$   
 C)  $\frac{2}{3}$   
 D)  $\frac{1}{3}$   
 E)  $-2$
40. A solution of  $x - 3(x - 2) = 4(x + 1) - 8$  is
- A)  $\frac{5}{3}$   
 B)  $2$   
 C)  $-\frac{1}{3}$   
 D)  $1$   
 E)  $\frac{2}{3}$
41. For what values of  $x$  is  $\sqrt{x^2 + 6x} = x + 6$  ?
- A) For no values of  $x$   
 B) For  $x = 6$  and  $x = -1$   
 C) For  $x = 2$  and  $x = 3$   
 D) For  $x = 6$  only  
 E) For  $x = -6$  only
42. If  $2az - 3ab = 3az - 2ab - 5a$ , then  $z =$
- A)  $5 - ab$   
 B)  $5 - b$   
 C)  $-b - 1$   
 D)  $b - 5$   
 E)  $-b + 5a$
43. If  $\frac{x+3}{x-2} = \frac{x-2}{x-3}$  then  $x =$
- A)  $-\frac{5}{4}$

44. An equation for the straight line through  $(3, -2)$  with a slope of 2 is  $y = mx + b$ , where  $b =$
45. Which of these is an equation for a line which passes through the origin and is perpendicular to the line  $4x + 2y = 3$  ?
46. What is the distance between the points  $(-2, 1)$  and  $(1, -3)$ ?
47. The slope of the line segment joining  $(-5, 3)$  with  $(-1, 2)$  is
- B)  $\frac{7}{4}$   
C)  $\frac{13}{4}$   
D)  $\frac{5}{2}$   
E) No Solution
- A)  $-8$   
B)  $-5$   
C)  $5$   
D)  $7$   
E)  $8$
- A)  $y = \frac{1}{4}x$   
B)  $y = -4x$   
C)  $y = 2x$   
D)  $y = \frac{1}{2}x$   
E)  $y = -\frac{1}{2}x$
- A)  $\frac{4}{3}$   
B)  $5$   
C)  $\frac{-4}{3}$   
D)  $\frac{3}{4}$   
E)  $\frac{-3}{4}$
- A)  $\frac{-1}{6}$   
B)  $\frac{-1}{4}$   
C)  $-4$   
D)  $-6$   
E)  $\frac{1}{4}$

48. What is the slope of the line with equation  $3x + 2y = 9 - 3x - y$ ?

- A) -6
- B) -3
- C) -2
- D) 0
- E) 3

49. Which of the following represents the graph of  $y = -3 + 2x$ ?

- A) B) C) D) E) None of these

50. Reduce to lowest terms:  $\frac{ax + 3x - ab - 3b}{x - b} =$

- A)  $a + 3$
- B)  $a - 3$
- C) 0
- D)  $ax + 3 - a - 3b$
- E)  $a + 3x - ab - 3$