

Trig Chapter 7 Test

Name _____

****NO GRAPHING ON ANY PART OF THE TEST**

Calculate the derivative of each function in 1-7 below.

_____ 1. $f(x) = 10x^5 - x^4 - x^3 - x^2 - x - 1$

- A. $50x^4 - 4x^3 - 3x^2 - 2x - 1$
B. $50x^4 - 4x^4 - 3x^3 - 2x - 1$

- C. $50x^5 - 4x^3 - 3x^2 + 2x - 1$
D. None of the above

_____ 2. $f(x) = -10x^2 + x - 10$

- A. $-20x^2 + 1$
B. $-20x^3 + 2x$

- C. $-20x + 1 - \frac{10}{x}$
D. None of the above

_____ 3. $f(x) = 2x^6 + 4x^2 - 3x + 3$

- A. $12x^5 + 4x + 3$
B. $12x^5 + 8x - 3$

- C. $12x^7 + 8x^3 - 3x^2 + 3x$
D. None of the above

_____ 4. $f(x) = 5x^{-4} + x^{-2}$

- A. $-20x^{-3} - 2x^{-3}$
B. $-20x^{-5} - 2x^{-3}$

- C. $-20x^{-3} - 2x^{-3}$
D. $-20x^{-3} - 2x^{-1}$

_____ 5. $f(x) = x^6 + x^3 - x + 10$

- A. $6x^5 + 3x^2 - x$
B. $6x^6 + 3x^3 - 1$

- C. $6x^5 + 3x^2 - 1$
D. None of the above

_____ 6. $f(x) = \frac{5}{x^6} + \frac{3}{x^2}$

- A. $\frac{-30}{x^5} - \frac{6}{x^3}$ B. $\frac{-30}{x^7} - \frac{6}{x^3}$

- C. $\frac{-30}{x^5} - \frac{6}{x^2}$ D. $\frac{30}{x^7} + \frac{6}{x^3}$

_____ 7. $f(x) = \frac{1}{5}x^5 + \frac{1}{2}x^4$

- A. $\frac{1}{x^4} + \frac{2}{x^3}$ B. $\frac{5}{x^4} + \frac{2}{x^3}$

- C. $x^4 + 2x^3$ D. None of the above

_____ 8. What is the slope of the line tangent to the graph of $f(x) = 5x^4 - 2x^2 + 6x - 10$ at the point (1, -1)?

- A. 20 B. 22 C. 28 D. 32 E. 34 H. 36

_____ 9. What is the slope of the line tangent to the graph of $f(x) = 2x^3 - 4x^2 + 4$ at the point (2, 4)?

- A. 1 B. 2 C. 5 D. 6 E. 7 H. None of the above

- _____10. What is the slope of the line tangent to the graph of $f(x) = x^3 - 3x^2 + 3$ at the point (1, 3)?
 A. 1 B. 2 C. 5 D. -2 E. -3 H. None of the above
- _____11. What is the equation of the line tangent to the graph of $f(x) = x^4 + x^3 + 2x$ at the point (1, 4)?
 A. $y = 4x - 8$ C. $y = 4x$ E. $y = 9x - 7$
 B. $y = 9x - 5$ D. $y = 9x + 4$ H. None of the above
- _____12. What is the equation of the line tangent to the graph of $f(x) = 2x^3 + 5x - 6$ at the point (1, 1)?
 A. $y = 11x - 10$ C. $y = 11x - 5$ E. $y = 11x - 11$
 B. $y = 11x + 1$ D. $y = 11x - 6$ H. None of the above
- _____13. What is the equation of the line tangent to the graph of $f(x) = x^4 - 10x^2 + 100x + 2$ at the point (5, 877)?
 A. $y = 500x - 3377$ C. $y = 500x - 1825$ E. $y = 500x - 1623$
 B. $y = -500x - 3777$ D. $y = -500x - 1825$ H. None of the above

For 14-17, find the critical points of each graph. Don't worry about labeling them. You may use a calculator to do any multiplying and adding that you need.

_____ 14. $f(x) = 2x^3 + 6x^2 + 10$

_____ 15. $f(x) = x^3 - 6x^2 + 2$

_____ 16. $f(x) = 4x^3 - 6x^2 - 5$

_____ 17. $f(x) = \frac{1}{3}x^3 - 2x^2 - 60x$

- _____18. What would be the **point of inflection** of the graph $f(x) = x^3 - 21x^2$?
 A. (0, 0) C. (1, -20) E. (10, -1100)
 B. (4, -272) D. (7, -686) H. None of the above

- _____19. Find the x intercept(s) of $f(x) = 3x - 48$
 A. (0, 16) B. (16, 0) C. (0, -48) D. (-48, 0) E. (16, -48)

- _____20. Find the y-intercept(s) of $f(x) = x^2 + 4x + 3$
 A. (0, 3) B. (3, 0) C. (0, -1) (0, -3) D. (-3, 0) (-1, 0) E. (0, 1) (0, 3)

- _____ 21. Find the x-intercept(s) of $f(x) = x^2 - 7x + 6$
 A. (0, 6) B. (-6, 0) C. (6, 0) (1, 0) D. (1,0) (-6, 0) E. (0, 1) (0, 6)

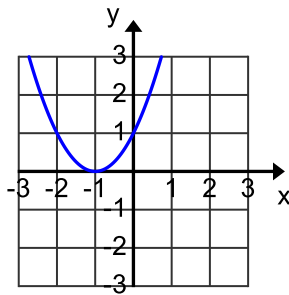
Match the graphs below with the correct discriminant value. (Not actually accurate)

A. Discriminant is 10

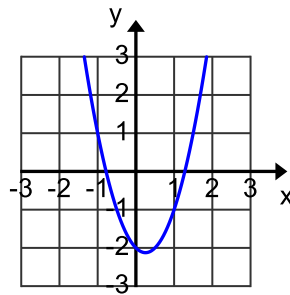
B. Discriminant is 0

C. Discriminant is -50

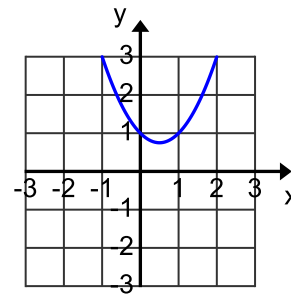
22.



23.



24.



22. _____

23. _____

24. _____