1. B.

2. A. 







3. D.



4. C. 

5. A. 

6. A.

 

7. C. , let 



8. Changed to D from C









9. C

 but an area cannot be negative. Therefore, the answer is C.

10. B







11. A



12. B.

  



1

x







13. D. The Maclaurin Series for sin(x) is given by  Thus sin(x2)=



14. D. This is an example of a telescoping series solved by method of partial fractions.

 The coefficients cancel and when expanded the sum that does not cancel is equal to 25/12.

15. B. The first derivative is –π so the function is decreasing and the second derivative indicates that the function is concave up, so the slope at which it is decreasing is *increasing*.

16. A. If you let u=sin-1(x) be the initial substitution, you can rewrite the integral and solve it by parts as follows



After collecting like terms and rewriting in terms of x, the solution is A.

17. Changed to A from B.



18. D.



19. D





20. C.





21. A.









22. Changed to B from A. For the *a*<0, the x(t) must be negative, which occurs when sine is on the interval [π, 2π]. Thus, t must be 4π/3.





23. C.



24. A.





25. B.

 

26. Changed to E from B. 

27. C. As the second term in the denominator becomes infinitely small, the value of the term gets closer to 1. Therefore, the limit becomes 2012+1=2013.



28. D.



29. A.



30. Changed to E from C.

