IB Math HL 2 Practice for final

1. Given that is a solution to the differential equation  and when, write the equation of the line tangent to  at .

2. Evaluate the integral: 

3. Find the exact value of a if , .

4 . Evaluate 

5. Consider the differential equation. Find the general solution in the form of .

6. Consider 

Using , solve the differential equation.

**7. Integrate:**

**a.**  b. ****

**8.** Write the equation(s) of the line(s) tangent to the curve  at 

9. Given  and 

a. Find the point of intersection of the lines

b. Write the Cartesian equation for the plane that contains the lines.

10. Consider the vectors given by  and , where *a* and *b* are constants.

 It is given that , where c is constant.

a. Find the value of each of the constants a, b, and c.

b. Hence find the Cartesian equation of the plane containing the vectors **u** and **v** and passing through the point (0, 0, 0).

*Notes: Complex numbers, Induction, and 3-D planes (row operation) are a big portion of the final. Make sure you know how to manage the IB questions and exit slips.*

1. 240

2. 

3. 

4. 

5. , , *k* is an integer

6.  is  is divisible by 3 for all 

Check : , which is divisible by 3. So  is true.

Assume  is true. Then  for some .

So for , 



, which is divisible by 3.

If  is true, then  is true. Since  is true, then  is true for all .

7. (2015 P2 TZ2 #5)

