

Math 266 Summer 2016 Quiz 4

1) Find the Wronskian of  $\cos^2(t)$  and  $\sin^2(t)$ .

$$\begin{vmatrix} \cos^2(t) & \sin^2(t) \\ -2\cos(t)\sin(t) & 2\sin(t)\cos(t) \end{vmatrix} = 2\sin(t)\cos^3(t) + 2\sin^3(t)\cos(t) \\ = 2\sin(t)\cos(t)(\cos^2(t) + \sin^2(t)) \\ = 2\sin(t)\cos(t) \\ = \sin(2t)$$

2) Perform the following calculations. Put your answer in the standard  $a + bi$  form.

(A)  $\frac{4+6i}{i-1}$  (B)  $(2+3i)(i-1) + 10i$

$$A) \frac{4+6i}{i-1} \left( \frac{-i-1}{-i-1} \right) = \frac{2-10i}{2} = 1-5i$$

$$B) (-5-i) + 10i = -5+9i$$

Max: 20

Min: 11

Average: 17