

Pearson Edexcel AS Further Mathematics 8FM0

Core Pure – 2 Complex Numbers

Time allowed: 45 minutes

School: www.CasperYC.club

Name:

Teacher:

How I can achieve better:

-
-
-

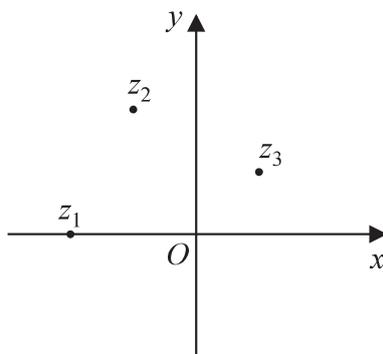
Question	Points	Score
1	6	
2	8	
3	6	
4	8	
5	8	
6	9	
7	7	
8	9	
9	7	
Total:	68	

Last updated: February 3, 2026



8FM0 Unit Test – Core Pure – 2 Complex Numbers

8. The complex numbers $z_1 = -2$, $z_2 = -1 + 2i$ and $z_3 = 1 + i$ are plotted below, on an Argand diagram for the complex plane with $z = x + iy$



- (a) Explain why z_1, z_2 and z_3 cannot all be roots of a quartic polynomial equation with real coefficients. [2]
- (b) Show that $\arg\left(\frac{z_2 - z_1}{z_3 - z_1}\right) = \frac{\pi}{4}$ [3]
- (c) Hence show that $\arctan(2) - \arctan\left(\frac{1}{3}\right) = \left(\frac{\pi}{4}\right)$ [2]
- (d) Copy Figure above and shade the set of points of the complex plane that satisfy the inequality [2]

$$|z + 2| \leq |z - 1 - i|$$

Total: 9



