**2E Loci on Argand Diagrams**

$$\left|z-z\_{1}\right|=r$$



1. Given that $\left|z-4\right|=5$
2. Sketch the locus of z on an Argand diagram



1. Find the values of z that satisfy:
2. $\left|z-4\right|=5$ and $Im\left(z\right)=0$



1. $\left|z-4\right|=5$ and $Re\left(z\right)=0$



1. If $\left|z-5-3i\right|=3$
2. Sketch the locus of P(x,y) which is represented by z on an Argand diagram



1. Find the maximum value of argz in the interval (-π,π)



1. Use an algebraic method to find a Cartesian equation of the locus of z
2. Given that the complex number z = x + iy satisfies the equation:

$$\left|z-12-5i\right|=3$$

Find the minimum and maximum values of |z|



Notes on Loci for |z-z1|=|z-z2|



1. Sketch the locus of P(x,y) which is represented by z on an Argand diagram, if:

$$\left|z\right|=\left|z-6i\right|$$



1. Show that the locus is y = 3 using an algebraic method
2. Use an algebraic method to find the Cartesian equation of the locus of z if:

$$\left|z-3\right|=\left|z+i\right|$$

1. Represent the locus of z on a cartesian set of axes



Notes on Loci for argz = ɵ



1. If

$$argz=\frac{π}{4}$$

Sketch the locus of P(x,y) which is represented by z on an Argand diagram. Then find the Cartesian equation of this locus algebraically.



1. If

$$arg⁡(z-2)=\frac{π}{3}$$

Sketch the locus of P(x,y) which is represented by z on an Argand diagram. Then find the Cartesian equation of this locus algebraically.



1. If

$$arg⁡(z+3+2i)=\frac{3π}{4}$$



Sketch the locus of z on an Argand diagram and use an algebraic method to find the equation of the line.