

# BHASVIC MaTHS

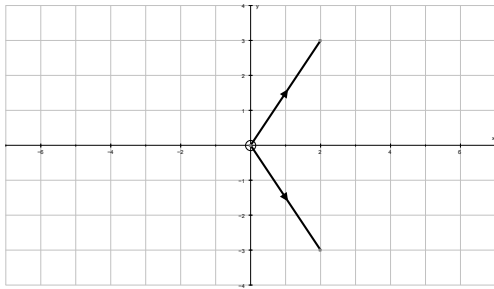
## A2 Doubles summer assignment Answers 2

### Section: *Core*

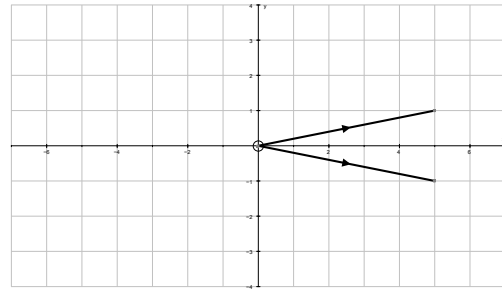
Past

1.

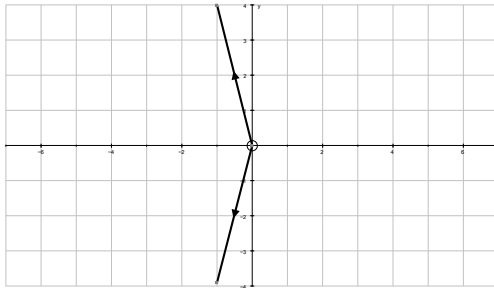
(a)



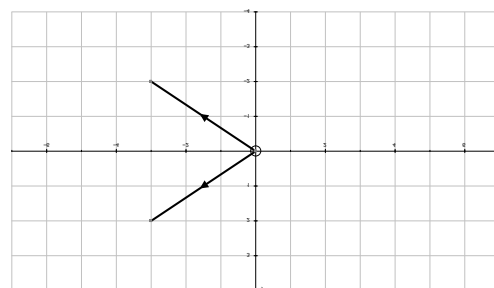
(b)



(c)

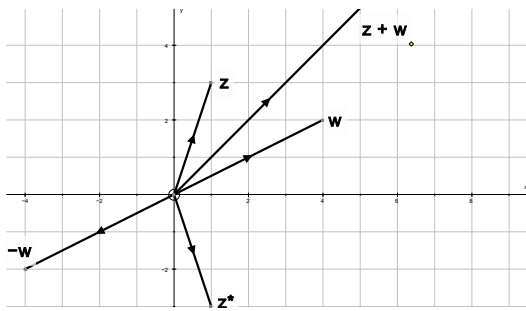


(d)

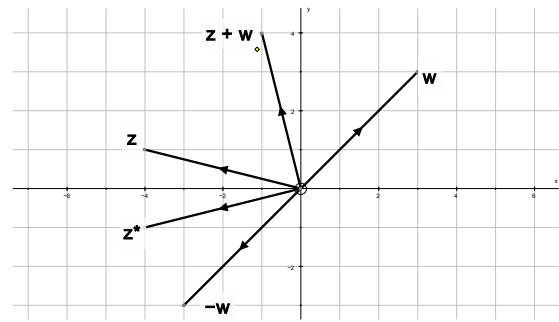


2.

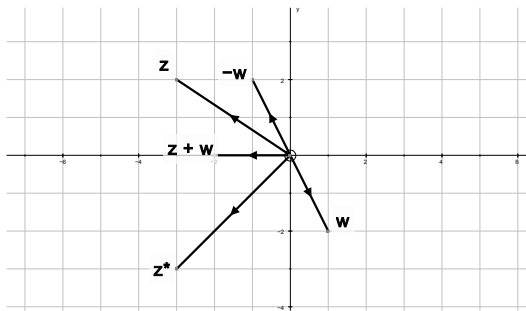
(a)



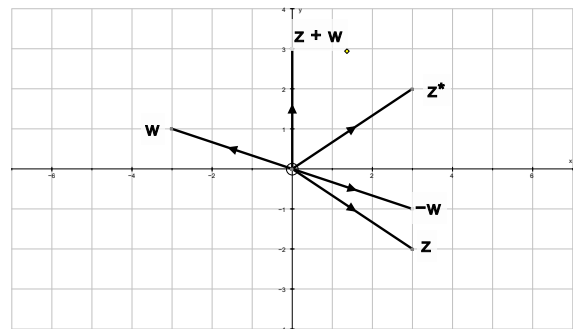
(b)



(c)



(d)



3.

(a)  $z = 4\left(\cos\left(\frac{\pi}{2}\right) + i\sin\left(\frac{\pi}{2}\right)\right)$

(b)  $z = 5(\cos \pi + i\sin \pi)$

(c)  $z = 4(\cos(-\frac{\pi}{3}) + i\sin(-\frac{\pi}{3}))$       (d)  $z = \frac{2}{3}(\cos(\frac{\pi}{6}) + i\sin(\frac{\pi}{6}))$

4. (a) mod = 4, arg =  $\frac{\pi}{3}$     (b) mod = 3, arg =  $-\frac{\pi}{8}$       (c) mod = 10, arg =  $-\frac{2\pi}{3}$       (d) mod = 6, arg =  $\frac{\pi}{10}$

5. (a)  $z = 15(\cos(\frac{7\pi}{12}) + i\sin(\frac{7\pi}{12}))$       (b)  $z = 2i$

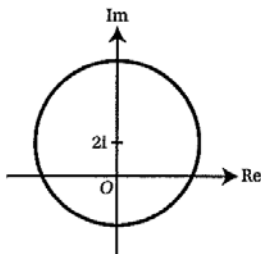
6.  $z^* = 1 - i, \frac{z}{z^*} = i$

7.  $zz^* = \frac{1}{13}$

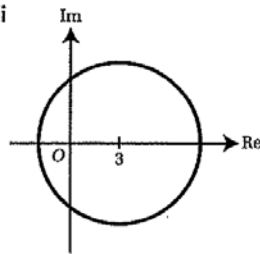
8.  $z = 3 + 4i$

Present

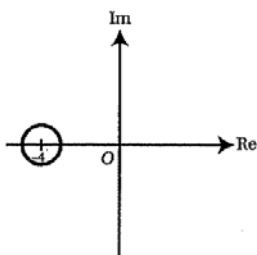
1. a i



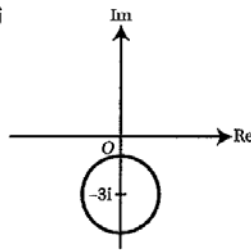
ii



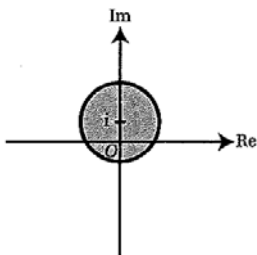
b i



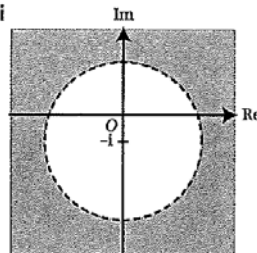
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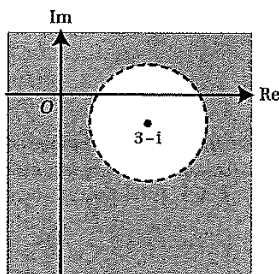
c i



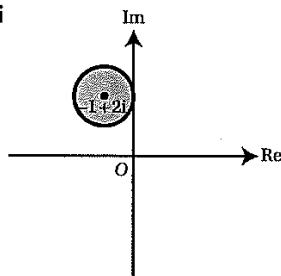
ii



d i



ii



2 a ii  $\{x + iy : (x - 3)^2 + y^2 = 25\}$

b i  $\{x + iy : (x + 4)^2 + y^2 = 1\}$

c i  $\{x + iy : x^2 + (y - 1)^2 \leq 4\}$

d i  $\{x + iy : (x - 3)^2 + (y + 1)^2 > 4\}$

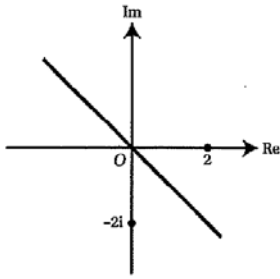
ii  $\{x + iy : x^2 + (y + 3)^2 = 4\}$

ii  $\{x + iy : x^2 + (y + 1)^2 > 9\}$

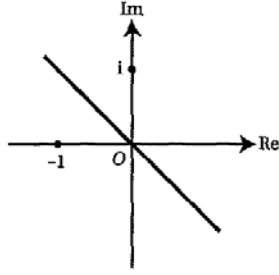
ii  $\{x + iy : (x + 1)^2 + (y - 2)^2 \leq 1\}$

3

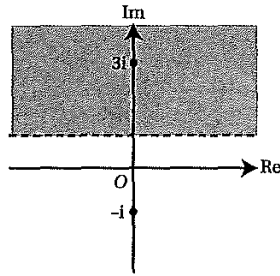
a i



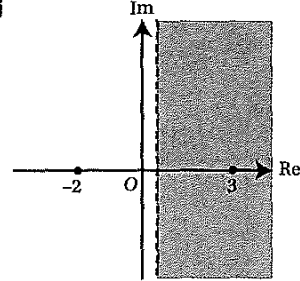
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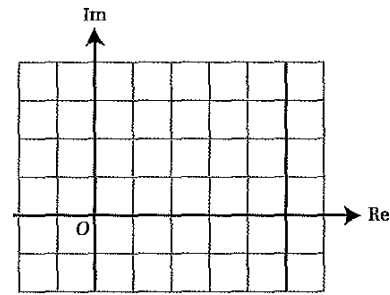
b i



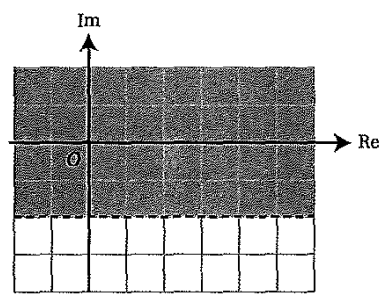
ii



c i

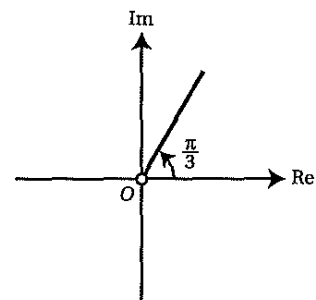


ii

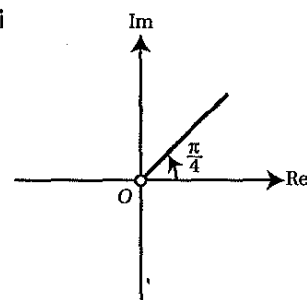


4

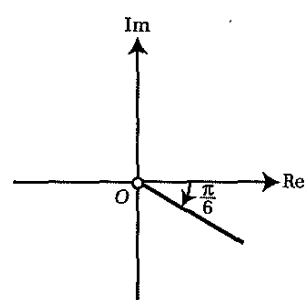
a i



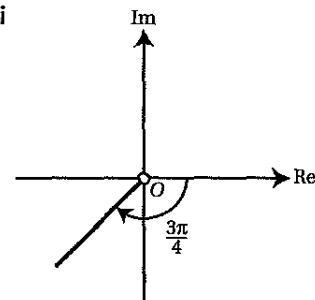
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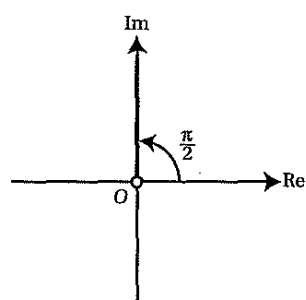
b i



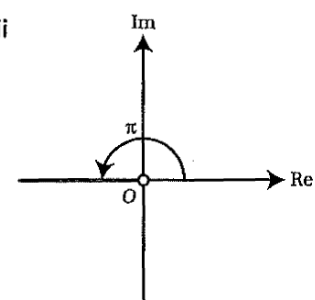
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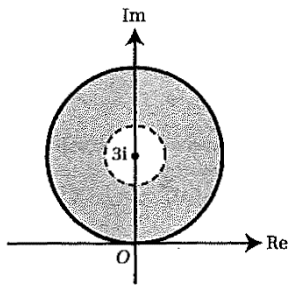
c i



ii



5



### Future

1.  $111.8^0, -111.8^0, \text{radius} = \frac{29}{4}$