

1:00pm

M4X 00391

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(ii)

$$(-5 - 2j)^5$$

 $\uparrow$
(x) real $\uparrow$
imaginary (y)

$$D_{MT} = r^n (\cos n\theta + j \sin n\theta)$$

$$r = \sqrt{x^2 + y^2} = \sqrt{(-5)^2 + (-2)^2} = 5.36$$

$$\theta = \tan^{-1} \left(\frac{y}{x} \right) \therefore \tan^{-1} \left(\frac{-2}{-5} \right) = 21.80$$

$$\therefore 5.36^5 \times (\cos(5 \times 21.80) + j \sin(5 \times 21.80))$$

$$\therefore 4424.01 \times (\cos(109) + j \sin(109))$$

$$\therefore 4424.01 \cos 109 = -1440.32$$

$$\therefore 4424.01 \sin 109 = 4182.98$$

$$\therefore -1440.32 + 4182.98j$$

(d)

$$j^4 = j^2 \times j^2 = (-1) \times (-1) = 1$$