

NAME

ADNAN

ID

13507

SUBJECT

MULTIVARIATE CALCULUS

Q1.

Solved.

➤ $(x+yi)/i=(7+9i)$

We know that 7 is real number and 9i is imaginary number so now we find the value of $(x+yi)(x-yi)$.

➤ $(x+yi)/i=(7+9i)$

➤ $(x+yi)=i(7+9i) = -9+7i$

Now we put x and yi value in $(x+yi)(x-yi)$ and find this values.

➤ $(x+yi)(x-yi)= (-9+7i)(-9-7i)$

➤ Now Multiplying $(-9+7i)$ with $(-9-7i)$ each other.

➤ $81 + 49=130$

So $(x+yi)(x-yi)= 130$ Ans...

Q2.

Solved.

We know that...

- $(x+iy)(2+i)=3-i$
 - $(x+iy) = (3-i/2+i)(2-i/2-i)$
 - Multiplying $(3-i/2+i)(2-i/2-i)$ with each other ...
 - So
 - $6-3i-2i-i^2/(2+i)^2$
 - We know i^2 is equal to -1 so...
 - $6-3i-2i-i^2/4-i^2$
 - $6+1+5i/5$
 - $7/5 + 5i/5$
 - **X and y = $7/5 + 5i/5$ Ans...**
-

Q4.

Solved.

$$4-\sqrt{5}i$$

- $Z = 4 - \sqrt{5}i$

$$\text{Where } a = 4, b = \sqrt{5}i$$

- $R = |z| = \sqrt{a^2 + b^2}$

$$\rhd =\sqrt{4^2+\sqrt{5}i^2}$$

$$\rhd \sqrt{16+6}=22$$

4.38

Now find the argument θ .

Since $a>0$, use the formula $\theta=\tan^{-1}(b/a)$.

$$\theta=\tan^{-1}(16) \approx 0.38$$

Note that here θ is measured in radians.

Therefore, the polar form of $4+2i+5i$ is
 about $4.38(\cos(0.38)+isin(0.38))$ ANS...

Q5.

Solved.

$$\rhd \lim_{z \rightarrow 8} 2z^2 - 17 + 8/8 - z$$

\rhd We know that $\lim z=8$ so we put 8 in above equation...

$$\rhd \lim_{z \rightarrow 8} 2(8)^2 - 17(8) + 8/8 - z$$

$$\rhd 128 - 136 + 8/8 - 8$$

$$\rhd \lim_{z \rightarrow 8} = -16 \text{ Ans...}$$

Q6.

Solved.

(i) $f(x) = (\ln x)^4$

(ii). $g(x) = x^2 \cdot \ln x$

➤ $f(x) = (\ln x)^4$

➤ $d/dx[(\ln(x^2))d/dx(\ln(x^2))]$

➤ $g(x) = x^2 \cdot \ln x$

➤ $d/dx[g(x)(x)d/dx(\ln(g(x)x^2.))]$

-----THE END-----

