

mth101 tma2 List of Questions

Latex formatted questions may not properly render

Q1 The sum of the first n terms of a series is $2n^2 - 3n$. Find the n th term and of the series.

- ☐ $2n-4$
- ☐ $\frac{1}{4}n^2-3$
- ☐ $\frac{1}{2}n^2-3$
- ☒ $4n-3$

Q2 Find the number of terms in an A.P. whose first term is 5, common difference 3, and sum 55.

- ☐ 4
- ☐ 5
- ☐ 6
- ☒ 7

Q3 let $z_1 = 5 + 12i$, $z_2 = 3 + 4i$. Find $(z_1)^2 - (z_2)^2$ in standard form

- ☐ $16 + 64i$
- ☐ $8 + 16i$
- ☐ $-108 + 96i$
- ☒ $-92 + 96i$

Q4 Determine the value(s) of x for which $\frac{x^7 + 5x^5 + 6x^3}{x^5 - 5x^4 + 6x^3}$ is undefined

- ☐ ± 2
- ☐ ± 1
- ☒ $2 \text{ or } 3$
- ☐ $-2 \text{ or } -3$

Q5 Suppose $z_1 = 5 + 12i$ and $z_2 = 3 + 4i$, express $\frac{z_1}{z_2}$ in polar form

- ☐ $\frac{13}{5}(\cos 14.3 + i \sin 14.3)$
- ☐ $\frac{13}{5}(\cos 14.3 - i \sin 14.3)$
- ☒ $\frac{69}{25}(\cos 14.3 + i \sin 14.3)$
- ☐ $\frac{4}{5}(\cos 14.3 + i \sin 14.3)$

Q6 Find the equation of a circle having centre (5, -4) and radius 7

- ☒ $x^2 + y^2 - 10x + 8y - 8 = 0$

- ☐ $[x^2+y^2-10x+8y+8=0]$
- ☐ $[x^2+y^2-10x+8y-2=0]$
- ☐ $[x^2+y^2+10x+8y-8=0]$

Q7 Express $12 + 5i$ in polar form (i.e in form of $[z=r\cos\theta + i\sin\theta]$)

- ☐ $[13(\cos 22.6 - i\sin 22.6)]$
- ☐ $[13(\cos 22.6 + i\sin 22.6)]$
- ☐ $[13(\cos 23.5 - i\sin 23.5)]$
- ☐ $[13(\cos 23.6 - i\sin 23.6)]$

Q8 If $[Z_1] = 7 + 12i$ and $[Z_2] = 4 + 3i$. Find the distance between $[Z_1]$ and $[Z_2]$

- ☐ $[\pm 3\sqrt{10}]$
- ☐ $[3\sqrt{10}]$
- ☐ $[-3\sqrt{10}]$
- ☐ $[10\sqrt{3}]$

Q9 Find the solution set for $[\frac{x-5}{x+10}] \leq 1$

- ☐ $[-5 \leq x \leq 10]$
- ☐ $[5 \leq x \leq -10]$
- ☐ $[x \geq -10 \text{ or } x \leq 5]$
- ☐ $[x \leq -10 \text{ or } x \geq 5]$

Q10 Solve for x in $[|x^2 - 4| \leq 4]$

- ☐ $[-2\sqrt{2} \leq x \leq 0]$
- ☐ $[x \geq 2\sqrt{2}]$
- ☐ $[0 \leq x \leq 2\sqrt{2}]$
- ☐ $[x \geq 0]$