
Govt. Ghazali Degree College, Jhang

(Important Short Questions)

Course: Algebra and Trigonometry

Chapter # 01

Number Systems

Following short questions are selected from previous 5 years papers of different boards. Solve these at your own to perform well in annual exams.

1. Define rational numbers.
2. Define complex numbers.
3. Write any two properties of inequalities.
4. Does the set $\{-1, 1\}$ possess closure property w.r.t. addition?
5. Find the multiplicative inverse of $(\sqrt{2}, -\sqrt{5})$.
6. Find the multiplicative inverse of $1 - 2i$.
7. Find the multiplicative inverse of $-3 - 5i$.
8. Find the multiplicative inverse of $(1, i)$.
9. Simplify $(8, -5) - (-7, 4)$.
10. Simplify $(a + bi)^3$.
11. Simplify $\frac{2}{\sqrt{5}-\sqrt{-8}}$ in the form $a + bi$.
12. Simplify $\frac{i}{1+i}$ in the form $a + bi$.
13. Simplify $(-i)^{19}$.
14. Simplify $(-1)^{\frac{-21}{2}}$.
15. Separate the real and imaginary parts of $\frac{2-7i}{4+5i}$.
16. Factorize: $9a^2 + 16b^2$.
17. Prove that $\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$.
18. Prove that $-\frac{7}{12} - \frac{5}{18} = \frac{-21-10}{36}$.
19. Show that $\forall z \in \mathbb{C}, z\bar{z} = |z|^2$.
20. Show that $\forall z \in \mathbb{C}, z^2 + \bar{z}^2$ is a real number.
21. If z is a complex number then prove that $\overline{z_1 + z_2} = \bar{z}_1 + \bar{z}_2$.
22. Express the complex number $1 + i\sqrt{3}$ in polar form.

Best of Luck