1. If $z = 3 - 4i$, then the modulus of z is:
   (a) 5
   (b) 7
   (c) 25
   (d) -5
2. The modulus of the complex number $z = -1 + i\sqrt{3}$ is:
   (a) 1
   (b) 2
   (c) $\sqrt{3}$
   (d) $\sqrt{2}$
3. If $z = 1 + i$ and $w = 2 - 2i$, find the modulus of $z + w$.
   (a) $2\sqrt{2}$
   (b) 3
   (c) $\sqrt{5}$
   (d) 4
4. If $|z-1| = |z+1|$, then the point z lies on:
   (a) A circle
   (b) A straight line
   (c) An ellipse
   (d) A parabola
5. The modulus of the complex number z, if $z + \frac{1}{z} = 2$, is:
   (a) 0
   (b) 1
   (c) 2
   (d) Cannot be determined
6. For $z = x + iy$ (where x and y are real numbers), if $|z| = 4$ and $arg(z) = \frac{\pi}{4}$, then z is:
   (a) $2\sqrt{2} + 2i\sqrt{2}$
   (b) $4 + 4i$
   (c) $2 + 2i$
   (d) $4i$
7. The modulus of $z = (1+i)^8$ is:
   (a) 16
   (b) 256
   (c) 64
   (d) 128
8. If z_1 and z_2 are two complex numbers such that $|z_1 - z_2| = |z_1| - |z_2|$, then:
   (a) z_1 is purely imaginary
   (b) z_2 is purely real
   (c) z_1 and z_2 are conjugates
   (d) z_1 and z_2 lie on the perpendicular bisector of the segment joining the origin and z_2
9. The value of $|\sqrt{i}|$ is:

(a) $\frac{1}{\sqrt{2}}$
(b) 1
(c) $\sqrt{2}$
(d) $\frac{1}{2}$

10. If $|z|^2 - z = 2 + 3i$, then z could be:

(a) $1+i$
(b) $-1+2i$
(c) $2+i$
(d) $1-i$

11. The modulus of the complex number $z = i^i$ is:

(a) 0
(b) 1
(c) $e^{-\frac{\pi}{2}}$
(d) $e^{\frac{\pi}{2}}$

12. If the modulus of the complex number $z = x+iy$ is 1 and $x^2+y^2 = 1$, then z could be:

(a) $\frac{1}{\sqrt{2}} + i\frac{1}{\sqrt{2}}$
(b) $1+i$
(c) $\frac{1}{2} + i\frac{\sqrt{3}}{2}$
(d) i

13. For $z = \cos\theta + i\sin\theta$, the modulus of $z^2 - z + 1$ is:

(a) 1
(b) $\sqrt{3}$
(c) 2
(d) $\sqrt{2}$

14. If $|z+1-i| = |z-1+i|$, then z is located on:

(a) The real axis
(b) The imaginary axis
(c) The line $y = x$
(d) The line $y = -x$

15. The modulus of the product of two complex numbers, $z_1 = 3+4i$ and $z_2 = 1-i$, is:

(a) 5
(b) 7
(c) 25
(d) 12

16. If the modulus of a complex number is equal to its conjugate, then the complex number is:

(a) Real
(b) Imaginary
(c) Unit modulus
(d) Zero

17. The modulus of $z = 1 - \omega + \omega^2$ (where ω is a cube root of unity) is:

(a) 1
(b) 0
(c) 2
(d) $\sqrt{3}$

18. The modulus of the complex number $z = (1 + i\sqrt{3})^4$ is:

(a) 16
(b) 64
(c) 128
(d) 256

19. If $|z - 4| = 2$, then the locus of z is:

(a) A circle with radius 2 centered at (4,0)
(b) A circle with radius 4 centered at (2,0)
(c) A line parallel to the real axis
(d) A line parallel to the imaginary axis

20. If $|z - 1| + |z + 1| = 4$, then the maximum value of $|z|$ is:

(a) 2
(b) 3
(c) 4
(d) 5

Answers:

1. a. 5
2. b. 2
3. a. $2\sqrt{2}$
4. b. A straight line
5. b. 1
6. a. $2\sqrt{2} + 2i\sqrt{2}$
7. b. 256
8. c. z_1 and z_2 are conjugates
9. b. 1
10. a. $1 + i$
11. b. 1
12. c. $\frac{1}{2} + i\frac{\sqrt{3}}{2}$
13. b. $\sqrt{3}$
14. c. The line $y = x$
15. d. 12
16. c. Unit modulus
17. b. 0
18. b. 64
19. a. A circle with radius 2 centered at (4,0)
20. b. 3