MATHS

BOOKS - MAHAVEER PUBLICATION

CARTESIAN AND POLAR COORDINATE SYSTEM

Question Bank

1. To plot the polar coordinate $\left(-2, \frac{\pi}{4}\right)$, move in the direction of $\frac{\pi}{4}$ from the polar axis

and then go to the distance 2 in the opposite direction as shown in figure below. Similarly two different polar representation of the same point $\left(2, \frac{\pi}{4}\right)$ are $\left(2, \frac{5\pi}{4}\right)$ and $\left(2, \frac{-3\pi}{4}\right)$.

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2. Convert polar coordinate into Cartesian coordinate

$\left(2, \frac{\pi}{4}\right)$

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3. Convert polar coordinate into Cartesian coordinate

$\left(3. \ -\frac{\pi}{3}\right)$

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4. Convert Cartesian coordinate into polar coordinate

(2,2)

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5. Convert Cartesian coordinate into polar coordinate

$(1, -\sqrt{3})$

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6. Convert Cartesian coordinate into polar coordinate

$(-1, \sqrt{3})$

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7. Find the distance between the points (5,3) and (-2,4)

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8. Find a point on the xaxis, which is equidistant from the points (7, 6) and (3, 4).

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9. Find the distance between the points $P\left(2, \frac{\pi}{2}\right)$ and $Q\left(3, \frac{\pi}{4}\right)$ which are in polar form.

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10. Convert the rectangular equation of a circle $x^2 + y^2 = c^2$ to a polar equation.

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11. Prove that the diagonals of a rectangle are equal.

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12. Show that the points P(-1, -1), Q(2,3) and R(2,6) are the vertices of a right-angled triangle.

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13. Show that the points A(1,2), B(4,5) and C(-1,0) lie on a straight line.

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14. Find the distance between the following pair of points

(5,4) and (2,-3)

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15. Find the distance between the following pair of points

(a,-a) and (b,b)

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16. Plot the following polar coordinates:

$\left(3, \frac{7\pi}{4}\right)$

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17. Plot the following polar coordinates:

$$\left(-2, \frac{5\pi}{2}\right)$$

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18. Plot the following polar coordinates:

$$\left(3, -\frac{\pi}{3}\right)$$

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19. Plot the following polar coordinates:

$$\left(-3, -\frac{3\pi}{4}\right)$$

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20. Convert into polar coordinates:

(-3,3)

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21. Convert into polar coordinates:

(0,6)

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22. Convert into polar coordinates:

$(-1, \sqrt{3})$

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23. Convert into Cartesian coordinates:

$$\left(\frac{6}{\sqrt{2}}, \frac{\pi}{4}\right)$$

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24. Convert into Cartesian coordinates:

$$\left(\frac{\sqrt{2}+1}{\sqrt{2}}, \frac{\pi}{4}\right)$$

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25. Convert into Cartesian coordinates:

$(2, 2\pi)$

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26. Find the distance between the points $P\left(3, \frac{3\pi}{6}\right)$ and $Q\left(-7, -\frac{\pi}{3}\right)$ which are given in polar coordinates.

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