

XI Maths Worksheet

Time: 60 min

Chapter#12. Introduction to Three Dimensional Geometry

Full Marks:

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- Q.1 Using section formula, prove that the three points $(-2, 3, 5)$, $(1, 2, 3)$ and $(7, 0, -1)$ are collinear. (3 marks)
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- Q.2 A point is on the x-axis. What is its y-coordinate and z-coordinate? (1 mark)
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- Q.3 Write the coordinates of the mid-point of the line segment joining two points $P(x_1, y_1, z_1)$ and $Q(x_2, y_2, z_2)$. (1 mark)
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- Q.4 Find the equation of set of points P such that $PA^2 + PB^2 = 2k^2$, where A and B are the points $(1, 2, 3)$ and $(1, 0, 0)$, respectively. (3 marks)
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- Q.5 Prove that the points $P(1, 2, 3)$, $Q(-1, -1, -1)$ and $R(3, 5, 7)$ are collinear. (2 marks)
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- Q.6 Find the coordinates of the point which divides externally the line segment joining the points $(1, -2, 3)$ and $(3, 4, -5)$ in the ratio $2 : 3$. (1 mark)
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- Q.7 Find the image of $(-2, 3, 4)$ in the yz- plane. (1 mark)
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- Q.8 Three vertices of a parallelogram ABCD are $A(4, 0, 3)$, $B(3, 4, -2)$ and $C(-2, 0, 1)$. Find the coordinates of the fourth vertex. (3 marks)
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- Q.9 Find the point in XY-plane which is equidistant from three points $A(2, 0, 3)$, $B(0, 3, 2)$ and $C(0, 0, 1)$. (3 marks)
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- Q.10 Name the octants in which the following points lie: $(2, 3, 4)$, $(1, -2, 6)$. (1 mark)
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- Q.11 Find the ratio in which the line joining the points $(1, 2, 3)$ and $(-3, 4, -5)$ is divided by the xy-plane. Also, find the coordinates of the point of division. (3 marks)
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- Q.12 A point P is at a distance of 6 units from the origin on the Z axis. Write the coordinates of P. (1 mark)
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- Q.13 Find centroid of a triangle, mid-points of whose sides are $(1, 2, -3)$, $(2, 0, 1)$ and $(-1, 1, -4)$. (5 marks)
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- Q.14 Find lengths of the medians of the triangle with vertices $A(0, 0, 6)$, $B(0, 4, 0)$ and $(6, 0, 0)$. (5 marks)
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- Q.15 Find the ratio in which the YZ-plane divides the line segment formed by joining the points $(-2, 4, 7)$ and $(3, -5, 8)$.
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- Q.16 Given that $P(3, 2, -4)$, $Q(5, 4, -6)$ and $R(9, 8, -10)$ are collinear. Find the ratio in which Q divides PR. (2 marks)
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Q.17 Write the coordinates of the centroid of triangle, whose vertices are $P(x_1, y_1, z_1)$, $Q(x_2, y_2, z_2)$ and $R(x_3, y_3, z_3)$. (1 mark)

Q.18 Are the points $A(3, 6, 9)$, $B(10, 20, 30)$ and $C(25, -41, 5)$ the vertices of a right angles triangle? (3 marks)

Q.19 Find the distance between the points $P(1, 0, 4)$ and $Q(-4, 1, 0)$. (1 mark)

Q.20 Find the locus of the point which is equidistant from the points $A(0,2,3)$ and $B(2,-2,1)$. (3 marks)
