Worksheet: Three Dimensional Geometry

IB · Class 12 · Mathematics · 8 questions · 33 marks

Name: _____ Date: _____ Score: _____ / 33

Q1. If a line makes angles 90, 135 and 45 degrees with the x, y and z-axes, find its direction cosines. *[2 marks]*

Q2. If a line has direction ratios -18, 12, -4, what are its direction cosines? *[3 marks]*

Q3. Find the vector and Cartesian equations of the line through the point (2,-1,4) in the direction i+2j-k. *[4 marks]*

Q4. Find the angle between the lines with direction ratios (2,2,1) and (4,1,8). *[4 marks]*

Q5. Show that the points (2,3,4), (-1,-2,1) and (5,8,7) are collinear. *[3 marks]*

Q6. Find the shortest distance between r=(i+2j+k)+lambda(i-j+k) and r=(2i-j-k)+mu(2i+j+2k). *[5 marks]*

Q7. Find p so that (1-x)/3=(7y-14)/(2p)=(z-3)/2 and (7-7x)/(3p)=(y-5)/1=(6-z)/5 are perpendicular. *[6 marks]*

Q8. Find the shortest distance between (x+1)/7=(y+1)/(-6)=(z+1)/1 and (x-3)/1=(y-5)/(-2)=(z-7)/1. *[6 marks]*