THREE DIMENSIONAL GEOMETRY

EQUATION OF A LINE IN SPACE

EXERCISE

Q.1 Find the Cartesian equation of the line that passes through the point A (1, 2, 1) and whose direction vector is given by (4, 5, -1)

Q.2 Find the equation of a line having an x-intercept of 5 units and a y-intercept of 4 units. Also, represent this equation in standard form.

Q.3 Find the slope and y-intercept of the line with equation $3x - 4y + 7 = 0$.

Q.4 The cost of a notebook is \$5 more than twice the cost of a pen. Represent the situation as an equation of a straight line.

Q.5 The equation of a straight line is given by $3x - 4y = 12$. Convert this into the intercept form and hence find the intercepts.

Q.6 Explain what is a straight line in math.

Q.7 How to calculate a straight line?

Q.8 How to find the slope of a straight line?

ANSWER KEY

1. $\frac{x-1}{4} = \frac{y-2}{5} = \frac{z-1}{-1}$

2. The standard form of the equation of a line is $4x + 5y = 20$.

3. Slope $m = 3/4$, and y-intercept $c = 7/4$.

4. $y = 2x + 5$

5. $\frac{x}{4} + \frac{y}{-3} = 1$; Intercepts: (4, 0) and (0, -3).