(a) : Equation of line passing through $P(-2, -1, 3)$ and parallel to vector $3\hat{i} + 2\hat{j} + 2\hat{k}$ is $\dfrac{x+2}{3} = \dfrac{y+1}{2} = \dfrac{z-3}{2}$.

Let $\dfrac{x+2}{3} = \dfrac{y+1}{2} = \dfrac{z-3}{2} = \lambda$

$\Rightarrow Q = (3\lambda - 2, 2\lambda - 1, 2\lambda + 3), \lambda \in \mathbb{R} - \{0\}$

Also, $|\overline{QR}| = 5 = \sqrt{(3\lambda - 3)^2 + (2\lambda - 4)^2 + (2\lambda)^2}$

$\therefore \quad 17\lambda^2 - 34\lambda + 25 = 25 \Rightarrow \lambda = 2 (\because \ \lambda \neq 0)$

$Q(4, 3, 7), P(-2, -1, 3), R(1, 3, 3)$

$$\therefore \quad \text{Area of } \Delta PQR = \frac{1}{2} \left| \overrightarrow{PQ} \times \overrightarrow{PR} \right|$$

$$\Delta = \frac{1}{2} \begin{Vmatrix} \hat{i} & \hat{j} & \hat{k} \\ 6 & 4 & 4 \\ 3 & 4 & 0 \end{Vmatrix}$$

$$\Delta = \left| -8\hat{i} + 6\hat{j} + 6\hat{k} \right| = \sqrt{136} \quad \therefore \ \Delta^2 = 136$$