



$$D = A + \vec{BC} \quad \vec{BC} = \begin{pmatrix} 0 \\ -9 \\ -3 \end{pmatrix}$$

$$= (-4; 1; 3) + (0; -9; -3)$$

$$= (-4; -8; 0)$$

$$M = \frac{A+B}{2} = \frac{(0; 4; 9)}{2} = (0; 2; 4.5)$$

$$N = \frac{B+C}{2} = \frac{(8; -3; 9)}{2} = (4; -1.5; 4.5)$$

$$P = \frac{C+D}{2} = \frac{(0; -14; 3)}{2} = (0; -7; 1,5)$$

$$Q = \frac{A+D}{2} = \frac{(-8; -7; 3)}{2} = (-4; -3,5; 1,5)$$

$$G_1 = \frac{A+B+C}{3} = \frac{(4; -2; 12)}{3} = \left(\frac{4}{3}; -\frac{2}{3}; 4\right)$$

$$G_2 = \frac{C+D+A}{2} = \frac{(-4; -13; 6)}{3} = \left(-\frac{4}{3}; -\frac{13}{3}; 2\right)$$