

**Soluție**

1. a)  $\overrightarrow{B'G} = \frac{1}{3} \cdot \overrightarrow{B'B} = -\frac{1}{3} \cdot \overrightarrow{BB'}$ ,  $\overrightarrow{BB'} = \frac{1}{2} \cdot (\overrightarrow{BA} + \overrightarrow{BC}) = \frac{1}{2} \cdot (\overrightarrow{BA} + \overrightarrow{BA} + \overrightarrow{AC})$ ,

$$\overrightarrow{B'G} = -\frac{1}{6} \cdot (-2 \cdot \overrightarrow{AB} + \overrightarrow{AC}) = \frac{1}{3} \cdot \overrightarrow{AB} - \frac{1}{6} \cdot \overrightarrow{AC}.$$

b)  $\frac{a-3}{8} = \frac{2}{a+3}$ ,  $a^2 - 9 = 16$ ,  $a = \pm 5$ .

2. a)  $m(\sphericalangle C) = 15^\circ$ . Se notează cu  $D$  piciorul perpendicularei din  $A$  pe  $BC$ , deci  $AD = AC \sin C$ .  $AD = \frac{1}{4}$ .

b)  $\cos B = \frac{AB^2 + BC^2 - AC^2}{2 \cdot AB \cdot BC}$ ,  $\cos B = \frac{1}{2}$ ,  $m(\sphericalangle B) = 60^\circ$ .

3. a)  $C \in Ox$ , deci  $y_C = 0$ ;  $x_C - 4y_C - 4 = 0$ , deci  $x_C = 4$ .

b)  $AB = 4\sqrt{2}$ ;  $AB: x - y + 4 = 0$ ,  $d(C, AB) = 4\sqrt{2}$ ; Aria este 16.