

1.

$$(1) 54 \quad (2) 0.7 \quad (3) 1 \quad (4) \frac{4 + \sqrt{2}i}{2} \quad \frac{4 - \sqrt{2}i}{2}$$

$$(5) \overrightarrow{DG} = \frac{1}{12} \overrightarrow{AB} - \frac{5}{12} \overrightarrow{AC}$$

2.

$$(1) a_{10} = 55 \quad (2) \sum_{n=1}^{\infty} \frac{1}{a_n} = 2$$

3.

$$f(x) = -2 \left(\cos x - \frac{1}{2} \right)^2 + 4$$

$$-\frac{1}{2} \leq y \leq 4$$

4.

$$(1) x = 0, 2 \quad (2) 2 < a < \frac{5}{2}$$

5.

$$(1) \frac{4}{21} \quad (2) \frac{1}{7}$$

6.

$$(1) \frac{9\sqrt{3}}{2} \quad (2) \frac{14}{3} \quad (3) \frac{54\sqrt{3}\pi}{7}$$