1. a)

i) $\dfrac{A \cdot B}{|B|} = \dfrac{15}{5} = 3$

ii) $\dfrac{A \cdot B}{|A|} = \dfrac{15}{\sqrt{10}}$

b) $\dfrac{A \cdot B}{|B|} = \dfrac{29}{5}$

2. $\dfrac{A \cdot B}{|B|} = 0 \rightarrow a + 6 = 0 \rightarrow a = -6$

$\dfrac{A \cdot B}{|B|} < 0 \rightarrow a + 6 < 0 \rightarrow a < -6$

3. $\dfrac{\pi}{2}$, $90°$