

1<sup>st</sup> exercise:

$$\begin{aligned}
 1) A &= \frac{4^{n+1} - 4^n}{2^{n+1} + 2^n} \\
 &= \frac{2^{2n+2} - 2^{2n}}{2^{n+1} + 2^n} \\
 &= \frac{2^{2n}(2^2 - 1)}{2^n(2+1)} \\
 &= \frac{2^n(4-1)}{2+1} \\
 &= \frac{2^n(3)}{3}
 \end{aligned}$$

$$A = 2^n$$

SO, (A)

$$\begin{aligned}
 2) E &= \sqrt{(7-4\sqrt{3})(7+4\sqrt{3})} + \sqrt{(3-\pi)^2} - \sqrt{(\pi-1)^2} \\
 &= \sqrt{7^2 - (4\sqrt{3})^2} + \pi - 3 - (\pi - 1) \\
 &= \sqrt{49 - 48} + \pi - 3 - \pi + 1 \\
 &= \sqrt{1} - 3 + 1 \\
 &= 1 - 3 + 1
 \end{aligned}$$

$$E = -1$$

SO, (C)

$$\begin{aligned}
 3) * AB &= \frac{1(\sqrt{7}-2)}{(\sqrt{7}+2)(\sqrt{7}-2)} \cdot \frac{1(\sqrt{7}+2)}{(\sqrt{7}-2)(\sqrt{7}+2)} \\
 &= \frac{\sqrt{7}-2 + \sqrt{7}+2}{\sqrt{7}^2 - 2^2} \\
 &= \frac{2\sqrt{7}}{7-4}
 \end{aligned}$$

$$AB = \frac{2\sqrt{7}}{3} \text{ cm}$$