

$$\begin{aligned} \text{area MON} &= \frac{2\sqrt{3}(3-\sqrt{5})}{2} \\ &= 3\sqrt{3} - \sqrt{15} \text{ cm}^2 \text{ (proved)}. \end{aligned}$$

$$\begin{aligned} \text{b) area ABCD} &= \text{Length} \times \text{Width} \\ &= (2\sqrt{5}-2)(\sqrt{5}+\sqrt{3}) \\ &= 2\sqrt{5}^2 + 2\sqrt{5} - 2\sqrt{5} + 2\sqrt{3} \\ &= 10\sqrt{3} - 2\sqrt{3} \\ &= 8\sqrt{3} \text{ cm}^2 \end{aligned}$$

to compare area MON and that of ABCD, we subtract them:

$$\begin{aligned} \text{area MON} - \text{area ABCD} &= 3\sqrt{3} - \sqrt{15} - 8\sqrt{3} \\ &= -(5\sqrt{3} + \sqrt{15}) \end{aligned}$$

$$-(5\sqrt{3} + \sqrt{15}) < 0, \text{ so } \text{area MON} - \text{area ABCD} < 0$$

$$\text{area MON} < \text{area ABCD}$$

3<sup>rd</sup> exercise

$$\begin{aligned} \text{1) a) } P(n) &= (3n-a)^2 + (3a+n)n - (a-b)(a+b) - b(2n+b-1) \\ &= 9n^2 - 6an + a^2 + 3an + n^2 - a^2 + b^2 - 2bn - b^2 + b \\ &= 10n^2 - 3an - 2bn + b \\ &= 10n^2 - n(3a+2b) + b \\ &= 10n^2 - (3a+2b)n + b \text{ (proved)}. \end{aligned}$$

$$\text{b) } P(n) \equiv Q(n)$$

$$10n^2 - (3a+2b)n + b \equiv 10n^2 - 7n + 1$$

$$\text{coefficient of } n^2: 10 = 10$$

$$\text{coefficient of } n: \boxed{3a+2b=7} \rightarrow 3a+b=7, 3a=5, a=\frac{5}{3}$$

$$\text{coefficient of } n^0: b=1$$

P-4.