(3) let $p(x) = 3x^4 + 6x^3 - 2x^2 - 10x - 5$

given zeros $\sqrt{\frac{5}{3}}, -\sqrt{\frac{5}{3}}$

polynomial with given zeros $[g(x)]$

$= (x-\alpha)(x-\beta)k$

$= \left(x - \sqrt{\frac{5}{3}}\right)\left(x + \sqrt{\frac{5}{3}}\right)k$

$= \left(x^2 - \frac{5}{3}\right)3 \quad (k=3)$

$= \frac{3x^2-5}{3} \times 3$

$$
\begin{array}{r}
x^2 + 2x + 1 \\
3x^2 - 5 \;\overline{)\; 3x^4 + 6x^3 - 2x^2 - 10x - 5} \\
3x^4 \qquad - 5x^2 \\
- \qquad + \\
\hline
6x^3 + 3x^2 - 10x - 5 \\
6x^3 \qquad - 10x \\
- \qquad + \\
\hline
3x^2 - 5 \\
3x^2 - 5 \\
- \quad + \\
\hline
0 \\
\hline
\end{array}
$$

$\therefore p(x) = g(x)\,[x^2 + 2x + 1]$

$= (x^2 + x + x + 1)[g(x)]$

$= x(x+1) + 1(x+1)\,[g(x)]$

$= (x+1)(x+1)[g(x)]$

remain. two zeros are $-1, -1$ $[\because x+1=0 \Rightarrow x=-1]$