I) 1. $-\dfrac{8}{3\sqrt[3]{x^4(2-x)^5}}$, $P=\emptyset$

2. $-\dfrac{4(3x^2-1)}{3\sqrt[3]{x^7(x^2-1)^4}}$, $P=\left\{\pm\dfrac{1}{\sqrt{3}}\right\}$

3. $-\dfrac{8}{3\sqrt[3]{(x-2)^4x^5}}$, $P=\emptyset$

4. $-\dfrac{4(3x^2+6x+2)}{3\sqrt[3]{(x+1)^7(x^2+2x)^4}}$, $P=\left\{-1\pm\dfrac{1}{\sqrt{3}}\right\}$

II) 1. $\dfrac{\operatorname{sgn}(1-x^2)}{1+x^2}$, $P=\emptyset$

2. $\dfrac{(x+1)\operatorname{sgn}(x-1)}{\sqrt{(x^2+1)^3}}$, $P=\{-1\}$

3. $-\dfrac{2\operatorname{sgn}x}{\mathrm{e}^x+\mathrm{e}^{-x}}$, $P=\emptyset$

4. $-\dfrac{4x\operatorname{sgn}(x^2-1)}{x^4+1}$, $P=\{0\}$