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Exercise: $f \in R[x]$, $c \in R$ $\rightarrow$ $\begin{cases} 1) \ \text{cont}(c \cdot f) = \text{cont}(c) \cdot \text{cont}(f) \\ 2) \ pp(f) = pp(c)\, pp(f). \end{cases}$

Let $f = \sum_{i=0}^{n} a_i x^i$ and $c \in R$.

1) $\text{cont}(c \cdot f) = \text{cont}\left(c \cdot \sum_{i=0}^{n} a_i x^i\right) = \text{cont}\left(\sum_{i=0}^{n} c a_i x^i\right) = \gcd(ca_0, \dots, ca_n) =$
$\gcd(c) \cdot \gcd(a_0, \dots, a_n) = \text{norm}(c) \gcd(a_0 \dots a_n) = \text{cont}(c)\,\text{cont}(f)$

2) $pp(cf) = \frac{cf}{\text{cont}(cf)} = \frac{cf}{\text{cont}(c) \cdot \text{cont}(f)} = \frac{c}{\text{cont}(c)} \frac{f}{\text{cont}(f)} = pp(c) \cdot pp(f).$