RP. 5c)

$$(a^2)^p \cdot (a^p b^{3p})^2 \cdot b^p$$

$$= a^{2p+2p} \cdot b^{6p+p} = \underline{\underline{a^{4p} b^{7p}}}$$

$$\left(= (a^4 b^7)^p \right)$$

RP. 10c)

$$9x^4 - 25x^2 = x^2(9x^2 - 25)$$

$$= x^2 \cdot (3x+5)(3x-5)$$

RP. 21b)

$$\left(1 - \frac{1}{x^4}\right) / \left(1 + \frac{1}{x^3}\right)$$

$$= \frac{x^4 \cdot \left(1 - \frac{1}{x^4}\right)}{x^4 \cdot \left(1 + \frac{1}{x^3}\right)} = \frac{x^4 - 1}{x^4 + x}$$

$$= \frac{(x^2+1)(x^2-1)}{x \cdot (x^3+1)} = \frac{(x^2+1)\cancel{(x+1)}(x-1)}{x \cdot \cancel{(x+1)}(x^2-x+1)}$$

$(x \neq -1$, ok)

$$= \underline{\underline{\frac{(x^2+1)(x-1)}{x \cdot (x^2-x+1)}}}$$

RP. 34a)

$$\sqrt{x^2+4x+4} = \sqrt{(x+2)^2} = \underline{\underline{|x+2|}}$$

Definierad för alla x.

$$f(x) = \sqrt{x^2+4x+4}$$

$$D(f) = \underline{\underline{\mathbb{R}}} = (-\infty, \infty)$$

RP. 45b) $3^x = 4 - 3^{1-x}$

$$3^x = 4 - \frac{3}{3^x}$$

Låt $z = 3^x$

$$\Rightarrow \quad z = 4 - \frac{3}{z}, \quad z \neq 0$$

$$z^2 = 4z - 3$$

$z^2 - 4z + 3 = 0$

$z = 2 \pm \sqrt{4 - 3} = 2 \pm 1$

$= \begin{cases} 1 \\ 3 \end{cases}$

$\therefore \quad 3^x = 1 \quad \text{eller} \quad 3^x = 3$

$\Rightarrow \quad \underline{\underline{x = 0 \quad \text{eller} \quad x = 1}}$

R.P. 65a)

$\ln(\ln x) = \ln 3$

Notera först: $\ln x > 0$

(ty argument till ln)

$\Rightarrow \quad x > 1$

ln strikt växande

$\Rightarrow \quad \ln x = 3$

$\Leftrightarrow \quad \underline{\underline{x = e^3}} \quad (> 1, \text{ok!})$