

4th exercise:

$$\begin{aligned} 1. A &= (x - \sqrt{2})^2 - 8 \\ &= x^2 + 2 - 2x\sqrt{2} - 8 \\ &= x^2 - 2x\sqrt{2} - 6 \\ A &= -6 - 2x\sqrt{2} + x^2 \end{aligned}$$

$$\begin{aligned} 2. A(\sqrt{18}) &= (\sqrt{18})^2 - 2(\sqrt{18})(\sqrt{2}) - 6 \\ &= 18 - 6 - 2\sqrt{18 \times 2} \\ &= 12 - 2\sqrt{36} \\ &= 12 - 12 \\ A &= \underline{0} \end{aligned}$$

$$\begin{aligned} 3. A &= (x - \sqrt{2})^2 - (2\sqrt{2})^2 \\ &= (x - \sqrt{2} + 2\sqrt{2})(x - \sqrt{2} - 2\sqrt{2}) \\ A &= (x + \sqrt{2})(x - 3\sqrt{2}) \end{aligned}$$

$$\begin{aligned} 4. B &= x(x - 3) + x\sqrt{2} - 3\sqrt{2} \\ &= x(x - 3) + \sqrt{2}(x - 3) \\ B &= (x - 3)(x + \sqrt{2}) \end{aligned}$$

5. a) F is defined when denominator  $\neq 0$   
 $(x - 3)(x + \sqrt{2}) \neq 0$   
 $x \neq 3$  &  $x \neq -\sqrt{2}$   
F is defined for all real values of  
x except for  $x = 3$  &  $x = -\sqrt{2}$

$$b) F = \frac{(x - 3\sqrt{2})(x + \sqrt{2})}{(x - 3)(x + \sqrt{2})}$$

$$F = \frac{x - 3\sqrt{2}}{x - 3}$$

Cond:  $x \neq 3$   
 $x \neq -\sqrt{2}$

$x - 3$  p. 5.