(1) [5] Solve for y:

$$\sqrt{y} + \sqrt{y+2} = 3$$

$$\left(\sqrt{y} + \sqrt{y+2}\right)^2 = 3^2$$

$$y + 2\sqrt{y}\sqrt{y+2} + y + 2 = 9$$

$$\left(2\sqrt{y}\sqrt{y+2}\right)^2 = (7-2y)^2$$

$$4y(y+2) = 49 - 28y + 4y^2$$

$$4y^2 + 8y = 49 - 28y + 4y^2$$

$$36y = 49$$

$$\boxed{y = \frac{49}{36}.}$$

(2) [5] Solve for n:

$$4 + n^2 = 2n$$

$$n^2 - 2n + 4 = 0$$

$$n = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$= \frac{-(-2) \pm \sqrt{(-2)^2 - 4(1)(4)}}{2(1)}$$

$$= \frac{2 \pm \sqrt{-12}}{2}$$

$$\boxed{\text{no real solutions.}}$$

(3) [5] Solve for x:

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

$$\frac{2}{(x-1)(x+1)} - \frac{1}{x(x-1)} = \frac{2}{x^2}$$ } notices $x \neq 0$, $x \neq 1$, $x \neq -1$

multiply through by $x^2(x-1)(x+1)$:

$$2x^2 - x(x+1) = 2(x-1)(x+1)$$

$$2x^2 - x^2 - x = 2x^2 - 2$$

$$x^2 + x - 2 = 0$$

$$x = \frac{-1 \pm \sqrt{1^2 - 4(1)(-2)}}{2(1)}$$

$$= \frac{-1 \pm \sqrt{9}}{2}$$

$$= \frac{-1 \pm 3}{2}$$

$\therefore$ ~~$x = 1$~~, $\boxed{x = -2}$

↑ extraneous root