1) $E[A] = Bool^3 \setminus \{(WFW), (WFF), (FFW)\}$

Es handelt sich um eine Kontingenz,

da $\underbrace{E[A] <> Bool^3}_{\text{Tautologie}} \vee \underbrace{E[A] <> \{\}}_{\text{Kontradiktion}}$ gilt

2) $E[A] = Bool^3$, spricht Tautologie

$T_1(a,b,c) \Longleftrightarrow T_2(a,b,c)$, daher identisch

1) $2a + b + 3$

$$-(a \cdot b)$$
$$+(-a) \cdot b$$
$$+a \cdot (-b)$$

2) $16 - \underbrace{(3x + y - \tfrac{1}{2}z)}_{a} \cdot \underbrace{(\tfrac{1}{2}z - 3x + y)}_{b}$

$16 - [\tfrac{3}{2}xz - 9x^2 + 3xy + \tfrac{1}{2}yz - 3xy + y^2$
$- \tfrac{1}{4}z^2 + \tfrac{3}{2}xz - \tfrac{1}{2}yz]$

$16 - 3xz + 9x^2 - y^2 + \tfrac{1}{4}z^2$

6) $y - 9$

7) $8a + 2$

$$\lim_{x \to 3} \left(\frac{2x-6}{2\sqrt{2x-2}-4} \right) = \left[\frac{0}{0} \right]$$

$$\frac{(x-3)\cdot \ldots}{(x-3)\cdot \ldots}$$

$$\frac{2(x-3)}{\underset{a \qquad -\, b}{2\sqrt{2x-2}-4}} \cdot \frac{2\sqrt{2x-2}+4}{\underset{a \qquad +\, b}{2\sqrt{2x-2}+4}}$$

$$\frac{2(x-3)\cdot\left(2\sqrt{2x-2}+4\right)}{\underset{a^2 \qquad -\, b^2}{4\cdot(2x-2) - 16}}$$

$$\to 8x - 8 - 16$$

$$8x - 24$$

$$8\cdot(x-3)$$

$$\frac{2\cdot\left(2\sqrt{2x-2}+4\right)}{8}$$

$$\Downarrow$$

$$\underline{\underline{2}}$$

$$\lim_{x \to (-5)} \frac{10+2x}{2-\frac{1}{2}\sqrt{6-2x}} = \frac{0}{0} \qquad (x+5)$$

$$\lim_{x \to (-5)} \frac{2\cdot(5+x)}{2-1/2\cdot\sqrt{6-2x}} \cdot \frac{2+1/2\sqrt{6-2x}}{2+1/2\sqrt{6-2x}}$$

$$\frac{2\cdot(x+5)\cdot(2+1/2\sqrt{6-2x})}{4-1/4\cdot(6-2x)} \qquad \frac{2\cdot(2+1/2\sqrt{6-2x})}{1/2}$$

$$5/2 + 1/2\,x \qquad\qquad \Downarrow$$

$$1/2\,(5+x) \qquad\qquad 16$$

1) $(2y + \frac{1}{2}x)(x - 4y) - 8 \cdot (\frac{1}{4}x + y)^2$

$\frac{1}{2}(x + 4y)(x - 4y) - 8 \cdot (\frac{1}{16}x^2 + \frac{1}{2}xy + y^2)$

$\frac{1}{2}(x^2 - 16y^2) - \frac{1}{2}x^2 - 4xy - 8y^2$

$-4xy - 16y^2$

3) $\frac{5 - 2\sqrt{x}}{3 + \sqrt{2x}} \cdot \frac{3 - \sqrt{2x}}{3 - \sqrt{2x}} = \frac{15 - 5 \cdot \sqrt{2x} - 6\sqrt{x} + 2x\sqrt{2}}{9 - 2x}$

$15 - 5 \cdot \sqrt{2} \cdot \sqrt{x} - 6 \cdot \sqrt{x} + x \cdot \sqrt{4 \cdot 2}$

$15 - \sqrt{x}(\sqrt{2} \cdot 5 + 6) + \sqrt{8} \cdot x$

$$\lim_{x \to 4} \frac{2x-8}{3\sqrt{x}-6} = \left[\frac{0}{0}\right]$$

$x-4$

$$\frac{2\cdot(x-4)}{3\sqrt{x}-6} \cdot \frac{3\sqrt{x}+6}{3\sqrt{x}+6}$$

$$\underbrace{\qquad}_{9x-36} = 9\cdot(x-4)$$

$$\lim_{x \to 4} \frac{2\cdot\cancel{(x-4)}\cdot(3\sqrt{x}+6)}{9\cdot\cancel{(x-4)}} = \frac{2\cdot 12}{9} = \frac{8}{3}$$