$\boxed{2131}$

(a) $$\left(\frac{p+1}{2}\right)^2 - \left(\frac{p-1}{2}\right)^2 = \frac{(p+1)^2}{2^2} - \frac{(p-1)^2}{2^2}$$

$$= \frac{p^2+2p+1-(p^2-2p+1)}{4}$$

$$= \frac{p^2+2p+1-p^2+2p-1}{4} = \frac{4p}{4} = p \quad (\underline{\underline{\text{Svar}}})$$

(b) $(2t)^2 + (k-2t^2)^2 - (k-2t^2-1)^2$

Utveckla de tre termerna var för sig:

- $(2t)^2 = 4t^2$
- $(k-2t^2)^2 = k^2 - 2\cdot k\cdot 2t^2 + (2t^2)^2 = k^2 - 4kt^2 + 4t^4$
- $$(k-2t^2-1)^2 = (k-2t^2-1)(k-2t^2-1)$$

$$= \underset{1}{k\cdot k} - \underset{2}{k\cdot 2t^2} - \underset{3}{k\cdot 1} - \underset{4}{2t^2\cdot k} + \underset{5}{2t^2\cdot 2t^2} + \underset{6}{2t^2\cdot 1} - \overset{7}{1\cdot k} + \overset{8}{1\cdot 2t^2} + \underset{9}{1\cdot 1})$$

$$= k^2 - 2kt^2 - k - 2kt^2 + 4t^4 + 2t^2 - k + 2t^2 + 1$$

$$= k^2 - 2k - 4kt^2 + 4t^2 + 4t^4 + 1$$

Då får vi

$$(2t)^2 + (k-2t^2)^2 - (k-2t^2-1)^2$$

$$= 4t^2 + k^2 - 4kt^2 + 4t^4 - (k^2 - 2k - 4kt^2 + 4t^2 + 4t^4 + 1)$$

$$= 4t^2 + k^2 - 4kt^2 + 4t^4 - k^2 + 2k + 4kt^2 - 4t^2 - 4t^4 - 1$$

$$= 2k - 1 \quad (\underline{\underline{\text{Svar}}})$$