1. Polynom: $x^4 + 2x^2 + 10$

   (a) $x = 0$: $0^4 + 2 \cdot 0^2 + 10 = 10$

   (b) $x = 1$: $1^4 + 2 \cdot 1^2 + 10 = 1 + 2 + 10 = 13$

   (c) $x = -1$: $(-1)^4 + 2 \cdot (-1)^2 + 10 = 1 + 2 + 10 = 13$

   (d) $x = 2$: $2^4 + 2 \cdot 2^2 + 10 = 16 + 8 + 10 = 34$

   (e) $x = -2$: $(-2)^4 + 2 \cdot (-2)^2 + 10 = 16 + 8 + 10 = 34$

   (f) $x = 3$: $3^4 + 2 \cdot 3^2 + 10 = 81 + 18 + 10 = 109$

   (g) $x = -3$: $(-3)^4 + 2 \cdot (-3)^2 + 10 = 81 + 18 + 10 = 109$

2. Polynom: $2a^3b - 3ab^2 + b - 4$

   (a) $a = 0$, $b = 0$:
   $2 \cdot 0^3 \cdot 0 - 3 \cdot 0 \cdot 0^2 + 0 - 4 = 0 - 0 + 0 - 4 = -4$

   (b) $a = 1$, $b = 0$:
   $2 \cdot 1^3 \cdot 0 - 3 \cdot 1 \cdot 0^2 + 0 - 4 = 0 - 0 + 0 - 4 = -4$

   (c) $a = 0$, $b = 1$:
   $2 \cdot 0^3 \cdot 1 - 3 \cdot 0 \cdot 1^2 + 1 - 4 = 0 - 0 + 1 - 4 = -3$

   (d) $a = 1$, $b = 1$:
   $2 \cdot 1^3 \cdot 1 - 3 \cdot 1 \cdot 1^2 + 1 - 4 = 2 - 3 + 1 - 4 = -4$

   (e) $a = 1$, $b = -1$:
   $2 \cdot 1^3 \cdot (-1) - 3 \cdot 1 \cdot (-1)^2 + (-1) - 4 = -2 - 3 + (-1) - 4 = -10$

   (f) $a = -1$, $b = 1$:
   $2 \cdot (-1)^3 \cdot 1 - 3 \cdot (-1) \cdot 1^2 + 1 - 4 = -2 - (-3) + 1 - 4 = -2$

   (g) $a = -1$, $b = -1$:
   $2 \cdot (-1)^3 \cdot (-1) - 3 \cdot (-1) \cdot (-1)^2 + 1 - 4 = 2 - (-3) + (-1) - 4 = 0$

   (h) $a = 2$, $b = 3$:
   $2 \cdot 2^3 \cdot 3 - 3 \cdot 2 \cdot 3^2 + 3 - 4 = 48 - 54 + 3 - 4 = -7$

   (i) $a = 3$ $b = 2$:
   $2 \cdot 3^3 \cdot 2 - 3 \cdot 3 \cdot 2^2 + 2 - 4 = 108 - 36 + 2 - 4 = 70$

3. $u = 2$, $v = -3$, $w = 10$ in $u^2vw + uv^2w + uvw^2$ einsetzen:
   $$\begin{aligned} &2^2 \cdot (-3) \cdot 10 + 2 \cdot (-3)^2 \cdot 10 + 2 \cdot (-3) \cdot 10^2 \\ &\quad = 4 \cdot (-3) \cdot 10 + 2 \cdot 9 \cdot 10 + 2 \cdot (-3) \cdot 100 \\ &\quad = -120 + 180 - 600 = -540 \end{aligned}$$

4. Durch Probieren erhält man z. B.: $(a^2 + ab = 4)$

   - $a = 4$, $b = -3$
   - $a = -2$, $b = 0$
   - $a = -1$, $b = -3$
   - $a = -4$, $b = 3$
   - $a = 2$, $b = 0$
   - $a = 1$, $b = 3$