```
Det[IdentityMatrix[4] - {{0, -1 + X, -1 + X, 0}, {0, 0, -1 + X, 0}, {-1 + X, 0, 0, -1 + X}, {-1 + X, 0, 0, 0}}]
```

$$1 - X^2 + 2X^3 - X^4$$

```
allsigns = Det[IdentityMatrix[4] - {{0, #[[1]], #[[2]], 0}, {0, 0, #[[3]], 0}, {#[[4]], 0, 0, #[[5]]}, {#[[6]], 0, 0, 0}} (X - 1)] & /@
  ((2 IntegerDigits[#, 2, 8] - 1) & /@ Range[0, 63])
```

$$\{-3 + 12X - 13X^2 + 6X^3 - X^4, -3 + 12X - 13X^2 + 6X^3 - X^4, -3 + 12X - 13X^2 + 6X^3 - X^4,$$
$$-3 + 12X - 13X^2 + 6X^3 - X^4, 1 - 2X + 5X^2 - 4X^3 + X^4, 1 - 2X + 5X^2 - 4X^3 + X^4, 1 - 2X + 5X^2 - 4X^3 + X^4,$$
$$1 - 2X + 5X^2 - 4X^3 + X^4, 1 - 2X + 5X^2 - 4X^3 + X^4, 1 - 2X + 5X^2 - 4X^3 + X^4, 1 - 2X + 5X^2 - 4X^3 + X^4,$$
$$1 - 2X + 5X^2 - 4X^3 + X^4, -3 + 12X - 13X^2 + 6X^3 - X^4, -3 + 12X - 13X^2 + 6X^3 - X^4,$$
$$-3 + 12X - 13X^2 + 6X^3 - X^4, -3 + 12X - 13X^2 + 6X^3 - X^4, 1 + 2X - 5X^2 + 4X^3 - X^4, 1 + 2X - 5X^2 + 4X^3 - X^4,$$
$$1 + 2X - 5X^2 + 4X^3 - X^4, 1 + 2X - 5X^2 + 4X^3 - X^4, 5 - 12X + 13X^2 - 6X^3 + X^4, 5 - 12X + 13X^2 - 6X^3 + X^4,$$
$$5 - 12X + 13X^2 - 6X^3 + X^4, 5 - 12X + 13X^2 - 6X^3 + X^4, 5 - 12X + 13X^2 - 6X^3 + X^4,$$
$$5 - 12X + 13X^2 - 6X^3 + X^4, 5 - 12X + 13X^2 - 6X^3 + X^4, 1 + 2X - 5X^2 + 4X^3 - X^4,$$
$$1 + 2X - 5X^2 + 4X^3 - X^4, 1 + 2X - 5X^2 + 4X^3 - X^4, 1 + 2X - 5X^2 + 4X^3 - X^4, 1 - 2X + 5X^2 - 4X^3 + X^4,$$
$$1 - 2X + 5X^2 - 4X^3 + X^4, 1 - 2X + 5X^2 - 4X^3 + X^4, 1 - 2X + 5X^2 - 4X^3 + X^4, 1 - X^2 + 2X^3 - X^4,$$
$$1 - X^2 + 2X^3 - X^4, 1 - X^2 + 2X^3 - X^4, 1 - X^2 + 2X^3 - X^4, 1 - X^2 + 2X^3 - X^4, 1 - X^2 + 2X^3 - X^4,$$
$$1 - X^2 + 2X^3 - X^4, 1 - X^2 + 2X^3 - X^4, 1 - 2X + 5X^2 - 4X^3 + X^4, 1 - 2X + 5X^2 - 4X^3 + X^4,$$
$$1 - 2X + 5X^2 - 4X^3 + X^4, 1 - 2X + 5X^2 - 4X^3 + X^4, 1 + X^2 - 2X^3 + X^4, 1 + X^2 - 2X^3 + X^4, 1 + X^2 - 2X^3 + X^4,$$
$$1 + X^2 - 2X^3 + X^4, 1 + 2X - 5X^2 + 4X^3 - X^4, 1 + 2X - 5X^2 + 4X^3 - X^4, 1 + 2X - 5X^2 + 4X^3 - X^4,$$
$$1 + 2X - 5X^2 + 4X^3 - X^4, 1 + 2X - 5X^2 + 4X^3 - X^4, 1 + 2X - 5X^2 + 4X^3 - X^4, 1 + 2X - 5X^2 + 4X^3 - X^4,$$
$$1 + 2X - 5X^2 + 4X^3 - X^4, 1 + X^2 - 2X^3 + X^4, 1 + X^2 - 2X^3 + X^4, 1 + X^2 - 2X^3 + X^4, 1 + X^2 - 2X^3 + X^4\}$$

```
allsigns /. X → 2
```

$$\{1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,$$
$$1, -3, -3, -3, -3, -3, -3, -3, -3, 1, 1, 1, 1, 5, 5, 5, 5, 1, 1, 1, 1, 1, 1, 1, 1, 5, 5, 5, 5\}$$