

```

int main (int argc, char** argv) {
    environment rheolef (argc, argv);
    geo omega (argv[1]);
    space Xh (omega, argv[2]);
    Xh.block ("boundary");
    trial u (Xh); test v (Xh);
    form a = integrate (dot(grad(u),grad(v)));
    field lh = integrate (v);
    field uh (Xh);
    uh ["boundary"] = 0;
    solver sa (a.uu());
    uh.u = sa.solve (lh.u());
    dout << uh;
}

```

Let  $\Omega \subset \mathbb{R}^N, N = 1, 2, 3$

$X_h = \{v \in H^1(\Omega); v|_K \in P_k, \forall K \in \mathcal{T}_h\}$

$V_h = X_h \cap H_0^1(\Omega)$

$a(u, v) = \int_{\Omega} \nabla u \cdot \nabla v \, dx$

$l(v) = \int_{\Omega} v \, dx$

$(P)$  : find  $u_h \in V_h$  such that

$a(u_h, v_h) = l(v_h), \quad \forall v_h \in V_h$