form_example.wxmx 1 / 1

```
(%i1)
                                                            load(clifford);
                                                               package name: clifford.mac
                                                               author: Dimiter Prodanov
                                                               version: v24
                                                               Recommended location: share/contrib
                                                               last update: 23 Aug 2017
(%01) "C:/Dropbox/maxima/clifford.mac"
                                                             pseudo differential forms
(%i2)
                                                            clifford(dx,3);
 (\%02) [1,1,1]
                                                             declare([omega_1, omega_2, omega_3], scalar);
(%i3)
(%o3) done
                                                             declare([eta_1, eta_2, eta_3], scalar);
(%i4)
(%o4) done
                                                             declare([sigma_1, sigma_2, sigma_3], scalar);
(%i5)
(%05) done
                                                            omega: omega_1 * dx[1] +omega_2 *dx[2] +omega_3*dx[3];
(%i6)
(omega) dx_1 \omega_1 + dx_2 \omega_2 + dx_3 \omega_3
(%i7) eta: eta_1 * dx[1] +eta_2 *dx[2] +eta_3*dx[3];
 (eta) dx_1 \eta_1 + dx_2 \eta_2 + dx_3 \eta_3
(%i8)
                                                            sigma: sigma_1 * dx[1] + sigma_2 * dx[2] + sigma_3 * dx[3];
(sigma) dx_1 \sigma_1 + dx_2 \sigma_2 + dx_3 \sigma_3
(%i9) P1:omega & eta,dotsimpc;
 (P1) \quad (dx_1 \cdot dx_2) \, \eta_2 \, \omega_1 + (dx_1 \cdot dx_3) \, \eta_3 \, \omega_1 - (dx_1 \cdot dx_2) \, \eta_1 \, \omega_2 + (dx_2 \cdot dx_3) \, \eta_3 \, \omega_2 - (dx_1 \cdot dx_3) \, \eta_1 \, \omega_3 - (dx_1 \cdot dx_2) \, \eta_1 \, \omega_2 + (dx_2 \cdot dx_3) \, \eta_3 \, \omega_2 - (dx_1 \cdot dx_3) \, \eta_3 \, \omega_3 - (dx_1 \cdot dx_3) \, \eta_3 
                                                             (dx_2 \cdot dx_3) \eta_2 \omega_3
(%i10) factorby(P1, [dx[1]. dx[2], dx[2].dx[3], dx[1].dx[3]]);
(\%010) -(dx_1 \cdot dx_2) (-\eta_2 \omega_1 + \eta_1 \omega_2) + (dx_1 \cdot dx_3) (\eta_3 \omega_1 - \eta_1 \omega_3) - (dx_2 \cdot dx_3) (-\eta_3 \omega_2 + \eta_2 \omega_3) + (dx_1 \cdot dx_2) (-\eta_3 \omega_2 + \eta_2 \omega_3) + (dx_2 \cdot dx_3) (-\eta_3 \omega_2 + \eta_2 \omega_3) + (dx_1 \cdot dx_2) (-\eta_3 \omega_2 + \eta_2 \omega_3) + (dx_2 \cdot dx_3) (-\eta_3 \omega_2 + \eta_2 \omega_3) + (dx_3 \cdot dx_3) (-\eta_3 \omega_2 + \eta_2 \omega_3) + (dx_3 \cdot dx_3) (-\eta_3 \omega_2 + \eta_2 \omega_3) + (dx_3 \cdot dx_3) (-\eta_3 \omega_2 + \eta_2 \omega_3) + (dx_3 \cdot dx_3) (-\eta_3 \omega_2 + \eta_2 \omega_3) + (dx_3 \cdot dx_3) (-\eta_3 \omega_2 + \eta_2 \omega_3) + (dx_3 \cdot dx_3) (-\eta_3 \omega_2 + \eta_2 \omega_3) + (dx_3 \cdot dx_3) (-\eta_3 \omega_2 + \eta_2 \omega_3) + (dx_3 \cdot dx_3) (-\eta_3 \omega_2 + \eta_2 \omega_3) + (dx_3 \cdot dx_3) (-\eta_3 \omega_2 + \eta_2 \omega_3) + (dx_3 \cdot dx_3) (-\eta_3 \omega_2 + \eta_2 \omega_3) + (dx_3 \cdot dx_3) (-\eta_3 \omega_2 + \eta_2 \omega_3) + (dx_3 \cdot dx_3) (-\eta_3 \omega_2 + \eta_2 \omega_3) + (dx_3 \cdot dx_3) (-\eta_3 \omega_2 + \eta_2 \omega_3) + (dx_3 \cdot dx_3) (-\eta_3 \omega_2 + \eta_2 \omega_3) + (dx_3 \cdot dx_3) (-\eta_3 \omega_2 + \eta_2 \omega_3) + (dx_3 \cdot dx_3) (-\eta_3 \omega_2 + \eta_2 \omega_3) + (dx_3 \cdot dx_3) (-\eta_3 \omega_2 + \eta_2 \omega_3) + (dx_3 \cdot dx_3) (-\eta_3 \omega_2 + \eta_2 \omega_3) + (dx_3 \cdot dx_3) (-\eta_3 \omega_2 + \eta_3 \omega_3) + (dx_3 \cdot dx_3) (-\eta_3 \omega_3 + \eta_3 \omega_3) + (dx_3 \cdot dx_3) + (dx_3 \cdot dx_3) (-\eta_3 \cdot dx_3) + (dx_3 \cdot dx_3) + 
(%i12) facsum(P1, [dx[1]. dx[2], dx[2].dx[3], dx[1].dx[3]]);
(\%012) - (dx_1 \cdot dx_2) (-\eta_2 \omega_1 + \eta_1 \omega_2) - (dx_1 \cdot dx_3) (-\eta_3 \omega_1 + \eta_1 \omega_3) - (dx_2 \cdot dx_3) (-\eta_3 \omega_2 + \eta_2 \omega_3) - (dx_3 \cdot dx_3) (-\eta_3 \omega_2 + \eta_2 \omega_3) - (dx_4 \cdot dx_3) (-\eta_3 \omega_1 + \eta_1 \omega_2) - (dx_4 \cdot dx_3) (-\eta_3 \omega_1 + \eta_1 \omega_3) - (dx_4 \cdot dx_3) (-\eta_3 \omega_1 + \eta_1 \omega_3) - (dx_4 \cdot dx_3) (-\eta_3 \omega_1 + \eta_1 \omega_3) - (dx_4 \cdot dx_3) (-\eta_3 \omega_1 + \eta_1 \omega_3) - (dx_4 \cdot dx_3) (-\eta_3 \omega_1 + \eta_1 \omega_3) - (dx_4 \cdot dx_3) (-\eta_3 \omega_1 + \eta_1 \omega_3) - (dx_4 \cdot dx_3) (-\eta_3 \omega_1 + \eta_1 \omega_3) - (dx_4 \cdot dx_3) (-\eta_3 \omega_1 + \eta_1 \omega_3) - (dx_4 \cdot dx_3) (-\eta_3 \omega_1 + \eta_1 \omega_3) - (dx_4 \cdot dx_3) (-\eta_3 \omega_1 + \eta_1 \omega_3) - (dx_4 \cdot dx_3) (-\eta_3 \omega_1 + \eta_1 \omega_3) - (dx_4 \cdot dx_3) (-\eta_3 \omega_1 + \eta_1 \omega_3) - (dx_4 \cdot dx_3) (-\eta_3 \omega_1 + \eta_1 \omega_3) - (dx_4 \cdot dx_3) (-\eta_3 \omega_1 + \eta_1 \omega_3) - (dx_4 \cdot dx_3) (-\eta_3 \omega_1 + \eta_1 \omega_3) - (dx_4 \cdot dx_3) (-\eta_3 \omega_1 + \eta_1 \omega_2) - (dx_4 \cdot dx_3) (-\eta_3 \omega_1 + \eta_1 \omega_2) - (dx_4 \cdot dx_3) (-\eta_3 \omega_1 + \eta_1 \omega_2) - (dx_4 \cdot dx_3) (-\eta_3 \omega_1 + \eta_1 \omega_2) - (dx_4 \cdot dx_3) (-\eta_3 \omega_1 + \eta_1 \omega_2) - (dx_4 \cdot dx_3) (-\eta_3 \omega_1 + \eta_1 \omega_2) - (dx_4 \cdot dx_3) (-\eta_3 \omega_1 + \eta_1 \omega_2) - (dx_4 \cdot dx_3) (-\eta_3 \omega_1 + \eta_1 \omega_2) - (dx_4 \cdot dx_3) (-\eta_3 \omega_1 + \eta_1 \omega_2) - (dx_4 \cdot dx_3) (-\eta_3 \omega_1 + \eta_1 \omega_2) - (dx_4 \cdot dx_3) (-\eta_3 \omega_1 + \eta_1 \omega_2) - (dx_4 \cdot dx_3) (-\eta_3 \omega_1 + \eta_1 \omega_2) - (dx_4 \cdot dx_3) (-\eta_3 \omega_1 + \eta_1 \omega_2) - (dx_4 \cdot dx_3) (-\eta_3 \omega_1 + \eta_1 \omega_2) - (dx_4 \cdot dx_3) (-\eta_3 \omega_1 + \eta_2 \omega_2) - (dx_4 \cdot dx_3) (-\eta_3 \omega_1 + \eta_2 \omega_2) - (dx_4 \cdot dx_3) (-\eta_3 \omega_1 + \eta_2 \omega_2) - (dx_4 \cdot dx_3) (-\eta_3 \omega_1 + \eta_2 \omega_2) - (dx_4 \cdot dx_3) (-\eta_3 \omega_1 + \eta_3 \omega_2) - (dx_4 \cdot dx_3) (-\eta_3 \omega_1 + \eta_3 \omega_2) - (dx_4 \cdot dx_3) (-\eta_3 \omega_1 + \eta_3 \omega_2) - (dx_4 \cdot dx_3) (-\eta_3 \omega_1 + \eta_3 \omega_2) - (dx_4 \cdot dx_3) (-\eta_3 \omega_1 + \eta_3 \omega_2) - (dx_4 \cdot dx_3) (-\eta_3 \omega_1 + \eta_3 \omega_2) - (dx_4 \cdot dx_3) (-\eta_3 \omega_1 + \eta_3 \omega_2) - (dx_4 \cdot dx_3) (-\eta_3 \omega_1 + \eta_3 \omega_2) - (dx_4 \cdot dx_3) (-\eta_3 \omega_1 + \eta_3 \omega_2) - (dx_4 \cdot dx_3) (-\eta_3 \omega_1 + \eta_3 \omega_2) - (dx_4 \cdot dx_3) (-\eta_3 \omega_1 + \eta_3 \omega_2) - (dx_4 \cdot dx_3) (-\eta_3 \omega_1 + \eta_3 \omega_2) - (dx_4 \cdot dx_3) (-\eta_3 \omega_1 + \eta_3 \omega_2) - (dx_4 \cdot dx_3) (-\eta_3 \omega_1 + \eta_3 \omega_2) - (dx_4 \cdot dx_3) (-\eta_3 \omega_1 + \eta_3 \omega_2) - (dx_4 \cdot dx_3) (-\eta_3 \omega_1 + \eta_3 \omega_2) - (dx_4 \cdot dx_3) (-\eta_3 \omega_1 + \eta_3 \omega_2) - 
(%i13) P2: omega & eta & sigma,factor;
(P2) -(dx_1 \cdot dx_2 \cdot dx_3)(-\eta_3 \omega_2 \sigma_1 + \eta_2 \omega_3 \sigma_1 + \eta_3 \omega_1 \sigma_2 - \eta_1 \omega_3 \sigma_2 - \eta_2 \omega_1 \sigma_3 + \eta_1 \omega_2 \sigma_3)
```