Robertson-Walker Metric of a flat universe in Cartesian coordinates:

$\boxed{x^\mu}$

$x^0 = t.$
$x^1 = x.$
$x^2 = y.$
$x^3 = z.$

$\boxed{g_{\mu\nu}}$

$g_{00} = c^2.$
$g_{01} = 0.$
$g_{02} = 0.$
$g_{03} = 0.$
$g_{10} = 0.$
$g_{11} = -\frac{a(t)^2(-1 + kz^2 + ky^2)}{-1 + kx^2 + kz^2 + ky^2}.$
$g_{12} = \frac{kyxa(t)^2}{-1 + kx^2 + kz^2 + ky^2}.$
$g_{13} = \frac{kzxa(t)^2}{-1 + kx^2 + kz^2 + ky^2}.$
$g_{20} = 0.$
$g_{21} = \frac{kyxa(t)^2}{-1 + kx^2 + kz^2 + ky^2}.$
$g_{22} = -\frac{a(t)^2(-1 + kx^2 + kz^2)}{-1 + kx^2 + kz^2 + ky^2}.$
$g_{23} = \frac{kzya(t)^2}{-1 + kx^2 + kz^2 + ky^2}.$
$g_{30} = 0.$
$g_{31} = \frac{kzxa(t)^2}{-1 + kx^2 + kz^2 + ky^2}.$
$g_{32} = \frac{kzya(t)^2}{-1 + kx^2 + kz^2 + ky^2}.$
$g_{33} = -\frac{(-1 + kx^2 + ky^2)a(t)^2}{-1 + kx^2 + kz^2 + ky^2}.$

$\boxed{\surd = \sqrt{-\det(g_{\mu\nu})}}$

$$\surd = \sqrt{-\frac{a(t)^6c^2}{-1 + kx^2 + kz^2 + ky^2}}.$$

$\boxed{g^{\mu\nu}}$

$g^{00} = \frac{1}{c^2}.$
$g^{01} = 0.$
$g^{02} = 0.$
$g^{03} = 0.$
$g^{10} = 0.$
$g^{11} = \frac{-1 + kx^2}{a(t)^2}.$
$g^{12} = \frac{kyx}{a(t)^2}.$
$g^{13} = \frac{kzx}{a(t)^2}.$
$g^{20} = 0.$
$g^{21} = \frac{kyx}{a(t)^2}.$
$g^{22} = \frac{-1 + ky^2}{a(t)^2}.$
$g^{23} = \frac{kzy}{a(t)^2}.$
$g^{30} = 0.$
$g^{31} = \frac{kzx}{a(t)^2}.$
$g^{32} = \frac{kzy}{a(t)^2}.$
$g^{33} = \frac{-1 + kz^2}{a(t)^2}.$

$\boxed{\Gamma^\sigma_{\mu\nu}}$

$\Gamma^0_{00} = 0.$
$\Gamma^0_{01} = 0.$
$\Gamma^0_{02} = 0.$
$\Gamma^0_{03} = 0.$
$\Gamma^0_{10} = 0.$
$\Gamma^0_{11} = \frac{\dot{a}(t)a(t)(-1 + kz^2 + ky^2)}{(-1 + kx^2 + kz^2 + ky^2)c^2}.$
$\Gamma^0_{12} = -\frac{k\dot{a}(t)yxa(t)}{(-1 + kx^2 + kz^2 + ky^2)c^2}.$
$\Gamma^0_{13} = -\frac{k\dot{a}(t)zxa(t)}{(-1 + kx^2 + kz^2 + ky^2)c^2}.$
$\Gamma^0_{20} = 0.$
$\Gamma^0_{21} = -\frac{k\dot{a}(t)yxa(t)}{(-1 + kx^2 + kz^2 + ky^2)c^2}.$
$\Gamma^0_{22} = \frac{\dot{a}(t)a(t)(-1 + kx^2 + kz^2)}{(-1 + kx^2 + kz^2 + ky^2)c^2}.$
$\Gamma^0_{23} = -\frac{k\dot{a}(t)zya(t)}{(-1 + kx^2 + kz^2 + ky^2)c^2}.$
$\Gamma^0_{30} = 0.$
$\Gamma^0_{31} = -\frac{k\dot{a}(t)zxa(t)}{(-1 + kx^2 + kz^2 + ky^2)c^2}.$
$\Gamma^0_{32} = -\frac{k\dot{a}(t)zya(t)}{(-1 + kx^2 + kz^2 + ky^2)c^2}.$
$\Gamma^0_{33} = \frac{\dot{a}(t)(-1 + kx^2 + ky^2)a(t)}{(-1 + kx^2 + kz^2 + ky^2)c^2}.$

$\Gamma^1_{00} = 0.$
$\Gamma^1_{01} = \frac{\dot{a}(t)}{a(t)}.$
$\Gamma^1_{02} = 0.$
$\Gamma^1_{03} = 0.$
$\Gamma^1_{10} = \frac{\dot{a}(t)}{a(t)}.$
$\Gamma^1_{11} = -\frac{kx - k^2y^2x - k^2z^2x}{-1 + kx^2 + kz^2 + ky^2}.$
$\Gamma^1_{12} = -\frac{k^2yx^2}{-1 + kx^2 + kz^2 + ky^2}.$
$\Gamma^1_{13} = -\frac{k^2zx^2}{-1 + kx^2 + kz^2 + ky^2}.$
$\Gamma^1_{20} = 0.$
$\Gamma^1_{21} = -\frac{k^2yx^2}{-1 + kx^2 + kz^2 + ky^2}.$
$\Gamma^1_{22} = -\frac{kx - k^2x^3 - k^2z^2x}{-1 + kx^2 + kz^2 + ky^2}.$
$\Gamma^1_{23} = -\frac{k^2zyx}{-1 + kx^2 + kz^2 + ky^2}.$
$\Gamma^1_{30} = 0.$
$\Gamma^1_{31} = -\frac{k^2zx^2}{-1 + kx^2 + kz^2 + ky^2}.$
$\Gamma^1_{32} = -\frac{k^2zyx}{-1 + kx^2 + kz^2 + ky^2}.$
$\Gamma^1_{33} = -\frac{kx - k^2y^2x - k^2x^3}{-1 + kx^2 + kz^2 + ky^2}.$

$\Gamma^2_{00} = 0.$
$\Gamma^2_{01} = 0.$
$\Gamma^2_{02} = \frac{\dot{a}(t)}{a(t)}.$
$\Gamma^2_{03} = 0.$
$\Gamma^2_{10} = 0.$
$\Gamma^2_{11} = \frac{k^2z^2y + k^2y^3 - ky}{-1 + kx^2 + kz^2 + ky^2}.$
$\Gamma^2_{12} = -\frac{k^2y^2x}{-1 + kx^2 + kz^2 + ky^2}.$
$\Gamma^2_{13} = -\frac{k^2zyx}{-1 + kx^2 + kz^2 + ky^2}.$
$\Gamma^2_{20} = \frac{\dot{a}(t)}{a(t)}.$
$\Gamma^2_{21} = -\frac{k^2y^2x}{-1 + kx^2 + kz^2 + ky^2}.$
$\Gamma^2_{22} = \frac{k^2yx^2 + k^2z^2y - ky}{-1 + kx^2 + kz^2 + ky^2}.$
$\Gamma^2_{23} = -\frac{k^2zy^2}{-1 + kx^2 + kz^2 + ky^2}.$
$\Gamma^2_{30} = 0.$
$\Gamma^2_{31} = -\frac{k^2zyx}{-1 + kx^2 + kz^2 + ky^2}.$
$\Gamma^2_{32} = -\frac{k^2zy^2}{-1 + kx^2 + kz^2 + ky^2}.$
$\Gamma^2_{33} = \frac{k^2yx^2 + k^2y^3 - ky}{-1 + kx^2 + kz^2 + ky^2}.$

$\Gamma^3_{00} = 0.$
$\Gamma^3_{01} = 0.$
$\Gamma^3_{02} = 0.$
$\Gamma^3_{03} = \frac{\dot{a}(t)}{a(t)}.$
$\Gamma^3_{10} = 0.$
$\Gamma^3_{11} = \frac{k^2z^3 + k^2zy^2 - kz}{-1 + kx^2 + kz^2 + ky^2}.$
$\Gamma^3_{12} = -\frac{k^2zyx}{-1 + kx^2 + kz^2 + ky^2}.$
$\Gamma^3_{13} = -\frac{k^2z^2x}{-1 + kx^2 + kz^2 + ky^2}.$
$\Gamma^3_{20} = 0.$
$\Gamma^3_{21} = -\frac{k^2zyx}{-1 + kx^2 + kz^2 + ky^2}.$
$\Gamma^3_{22} = \frac{k^2z^3 + k^2zx^2 - kz}{-1 + kx^2 + kz^2 + ky^2}.$
$\Gamma^3_{23} = -\frac{k^2z^2y}{-1 + kx^2 + kz^2 + ky^2}.$
$\Gamma^3_{30} = \frac{\dot{a}(t)}{a(t)}.$
$\Gamma^3_{31} = -\frac{k^2z^2x}{-1 + kx^2 + kz^2 + ky^2}.$
$\Gamma^3_{32} = -\frac{k^2z^2y}{-1 + kx^2 + kz^2 + ky^2}.$
$\Gamma^3_{33} = \frac{k^2zx^2 + k^2zy^2 - kz}{-1 + kx^2 + kz^2 + ky^2}.$

$$\boxed{\ddot{x}^\mu = \left(\Gamma^0_{\sigma\rho}\dot{x}^\mu - \Gamma^\mu_{\sigma\rho}\right)\dot{x}^\sigma\dot{x}^\rho}$$

$\ddot{x}^0 = 0.$

$$\ddot{x}^1 = \frac{k\dot{a}(t)y^2a(t)^2\dot{x}^3 + k\dot{a}(t)\dot{z}^2x^2a(t)^2\dot{x} - k^2\dot{z}^2x^3a(t)c^2 - k^2\dot{z}^2y^2xa(t)c^2 - k^2y^2xa(t)c^2\dot{x}^2 + 2k^2\dot{z}zx^2a(t)c^2\dot{x} + k\dot{z}^2xa(t)c^2 - 2k\dot{a}(t)y^2c^2\dot{x} + kxa(t)c^2\dot{x}^2 + 2\dot{a}(t)c^2\dot{x} + k\dot{a}(t)\dot{z}^2y^2a(t)^2\dot{x} - 2k\dot{a}(t)z^2c^2\dot{x} - k^2z^2xa(t)c^2\dot{x}^2 - \dot{a}(t)a(t)^2\dot{x}^3 - 2k\dot{a}(t)\dot{z}zxa(t)^2\dot{x}^2 - 2k\dot{a}(t)x^2c^2\dot{x} - \dot{a}(t)\dot{z}^2a(t)^2\dot{x} + k\dot{a}(t)z^2a(t)^2\dot{x}^3}{(-1 + kx^2 + kz^2 + ky^2)a(t)c^2}.$$

$$\ddot{x}^2 = -\frac{k^2z^2y\dot{x}^2 - k\dot{z}^2y - 2k^2\dot{z}zyx\dot{x} + k^2\dot{z}^2y^3 - ky\dot{x}^2 + k^2y^3\dot{x}^2 + k^2\dot{z}^2yx^2}{-1 + kx^2 + kz^2 + ky^2}.$$

$$\ddot{x}^3 = -\frac{\dot{a}(t)\dot{z}^3a(t)^2 - k\dot{a}(t)\dot{z}^3x^2a(t)^2 + k^2z^3a(t)c^2\dot{x}^2 - k\dot{z}^2za(t)c^2 + k^2\dot{z}^2zy^2a(t)c^2 + k^2zy^2a(t)c^2\dot{x}^2 - k\dot{a}(t)\dot{z}y^2a(t)^2\dot{x}^2 + \dot{a}(t)\dot{z}a(t)^2\dot{x}^2 + 2k\dot{a}(t)\dot{z}x^2c^2 + 2k\dot{a}(t)\dot{z}^2zxa(t)^2\dot{x} + 2k\dot{a}(t)\dot{z}y^2c^2 + k^2\dot{z}^2zx^2a(t)c^2 - k\dot{a}(t)\dot{z}z^2a(t)^2\dot{x}^2 - 2\dot{a}(t)\dot{z}c^2 - k\dot{a}(t)\dot{z}^3y^2a(t)^2 + 2k\dot{a}(t)\dot{z}z^2c^2 - kza(t)c^2\dot{x}^2 - 2k^2\dot{z}z^2xa(t)c^2\dot{x}}{(-1 + kx^2 + kz^2 + ky^2)a(t)c^2}.$$

$\boxed{R_{\mu\nu}}$

$$R_{00} = 3\frac{\ddot{a}(t)}{a(t)}.$$
$$R_{01} = 0.$$
$$R_{02} = 0.$$
$$R_{03} = 0.$$
$$R_{10} = 0.$$
$$R_{11} = \frac{2kc^2 - 2k\dot{a}(t)^2z^2 - 2k\dot{a}(t)^2y^2 + 2\dot{a}(t)^2 - k\ddot{a}(t)y^2a(t) - 2k^2y^2c^2 - kz^2\ddot{a}(t)a(t) + \ddot{a}(t)a(t) - 2k^2z^2c^2}{(-1 + kx^2 + kz^2 + ky^2)c^2}.$$
$$R_{12} = \frac{2k\dot{a}(t)^2yx + k\ddot{a}(t)yxa(t) + 2k^2yxc^2}{(-1 + kx^2 + kz^2 + ky^2)c^2}.$$
$$R_{13} = \frac{2k^2zxc^2 + kz\ddot{a}(t)xa(t) + 2k\dot{a}(t)^2zx}{(-1 + kx^2 + kz^2 + ky^2)c^2}.$$
$$R_{20} = 0.$$
$$R_{21} = \frac{2k\dot{a}(t)^2yx + k\ddot{a}(t)yxa(t) + 2k^2yxc^2}{(-1 + kx^2 + kz^2 + ky^2)c^2}.$$
$$R_{22} = \frac{2kc^2 - 2k\dot{a}(t)^2z^2 - 2k^2x^2c^2 - k\ddot{a}(t)x^2a(t) + 2\dot{a}(t)^2 - 2k\dot{a}(t)^2x^2 - kz^2\ddot{a}(t)a(t) + \ddot{a}(t)a(t) - 2k^2z^2c^2}{(-1 + kx^2 + kz^2 + ky^2)c^2}.$$
$$R_{23} = \frac{kz\ddot{a}(t)ya(t) + 2k\dot{a}(t)^2zy + 2k^2zyc^2}{(-1 + kx^2 + kz^2 + ky^2)c^2}.$$
$$R_{30} = 0.$$
$$R_{31} = \frac{2k^2zxc^2 + kz\ddot{a}(t)xa(t) + 2k\dot{a}(t)^2zx}{(-1 + kx^2 + kz^2 + ky^2)c^2}.$$
$$R_{32} = \frac{kz\ddot{a}(t)ya(t) + 2k\dot{a}(t)^2zy + 2k^2zyc^2}{(-1 + kx^2 + kz^2 + ky^2)c^2}.$$
$$R_{33} = \frac{2kc^2 - 2k^2x^2c^2 - k\ddot{a}(t)x^2a(t) - 2k\dot{a}(t)^2y^2 + 2\dot{a}(t)^2 - k\ddot{a}(t)y^2a(t) - 2k^2y^2c^2 - 2k\dot{a}(t)^2x^2 + \ddot{a}(t)a(t)}{(-1 + kx^2 + kz^2 + ky^2)c^2}.$$

$\boxed{R^{\mu}_{\ \nu}}$

$$R^{0}_{\ 0} = 3\frac{\ddot{a}(t)}{a(t)c^2}.$$
$$R^{0}_{\ 1} = 0.$$
$$R^{0}_{\ 2} = 0.$$
$$R^{0}_{\ 3} = 0.$$
$$R^{1}_{\ 0} = 0.$$
$$R^{1}_{\ 1} = \frac{\ddot{a}(t)}{a(t)c^2} + 2\frac{k}{a(t)^2} + 2\frac{\dot{a}(t)^2}{a(t)^2c^2}.$$
$$R^{1}_{\ 2} = 0.$$
$$R^{1}_{\ 3} = 0.$$
$$R^{2}_{\ 0} = 0.$$
$$R^{2}_{\ 1} = 0.$$
$$R^{2}_{\ 2} = \frac{\ddot{a}(t)}{a(t)c^2} + 2\frac{k}{a(t)^2} + 2\frac{\dot{a}(t)^2}{a(t)^2c^2}.$$
$$R^{2}_{\ 3} = 0.$$
$$R^{3}_{\ 0} = 0.$$
$$R^{3}_{\ 1} = 0.$$
$$R^{3}_{\ 2} = 0.$$
$$R^{3}_{\ 3} = \frac{\ddot{a}(t)}{a(t)c^2} + 2\frac{k}{a(t)^2} + 2\frac{\dot{a}(t)^2}{a(t)^2c^2}.$$

$\boxed{R}$

$$R = 6\frac{\ddot{a}(t)}{a(t)c^2} + 6\frac{k}{a(t)^2} + 6\frac{\dot{a}(t)^2}{a(t)^2c^2}.$$

$\boxed{G^{\mu}_{\ \nu}}$

$$G^{0}_{\ 0} = -3\frac{kc^2 + \dot{a}(t)^2}{a(t)^2c^2}.$$
$$G^{0}_{\ 1} = 0.$$
$$G^{0}_{\ 2} = 0.$$
$$G^{0}_{\ 3} = 0.$$
$$G^{1}_{\ 0} = 0.$$
$$G^{1}_{\ 1} = -\frac{kc^2 + \dot{a}(t)^2 + 2\ddot{a}(t)a(t)}{a(t)^2c^2}.$$
$$G^{1}_{\ 2} = 0.$$
$$G^{1}_{\ 3} = 0.$$
$$G^{2}_{\ 0} = 0.$$
$$G^{2}_{\ 1} = 0.$$
$$G^{2}_{\ 2} = -\frac{kc^2 + \dot{a}(t)^2 + 2\ddot{a}(t)a(t)}{a(t)^2c^2}.$$
$$G^{2}_{\ 3} = 0.$$
$$G^{3}_{\ 0} = 0.$$
$$G^{3}_{\ 1} = 0.$$
$$G^{3}_{\ 2} = 0.$$
$$G^{3}_{\ 3} = -\frac{kc^2 + \dot{a}(t)^2 + 2\ddot{a}(t)a(t)}{a(t)^2c^2}.$$

$\boxed{G}$

$$G = -6\frac{\ddot{a}(t)}{a(t)c^2} - 6\frac{k}{a(t)^2} - 6\frac{\dot{a}(t)^2}{a(t)^2c^2}.$$

$\boxed{G^{\mu}_{\ \nu;\mu} = 0}$

$$G^{\mu}_{\ 0;\mu} = 0.$$
$$G^{\mu}_{\ 1;\mu} = 0.$$
$$G^{\mu}_{\ 2;\mu} = 0.$$
$$G^{\mu}_{\ 3;\mu} = 0.$$

$\boxed{g^{\mu\nu}\,\Gamma^{\lambda}_{\mu\nu} = 0?}$

$$g^{\mu\nu}\,\Gamma^{0}_{\mu\nu} = -4\frac{k^2\dot{a}(t)y^2x^2a(t)^3}{(-1 + kx^2 + kz^2 + ky^2)^2c^2} - 2\frac{k^2\dot{a}(t)x^4a(t)^3}{(-1 + kx^2 + kz^2 + ky^2)^2c^2} - 3\frac{\dot{a}(t)a(t)^3}{(-1 + kx^2 + kz^2 + ky^2)^2c^2} - 2\frac{k^2\dot{a}(t)y^4a(t)^3}{(-1 + kx^2 + kz^2 + ky^2)^2c^2} + 4\frac{k\dot{a}(t)z^2a(t)^3}{(-1 + kx^2 + kz^2 + ky^2)^2c^2} + 4\frac{k\dot{a}(t)y^2a(t)^3}{(-1 + kx^2 + kz^2 + ky^2)^2c^2} - 2\frac{k^2\dot{a}(t)z^4a(t)^3}{(-1 + kx^2 + kz^2 + ky^2)^2c^2} - 4\frac{k^2\dot{a}(t)z^2y^2a(t)^3}{(-1 + kx^2 + kz^2 + ky^2)^2c^2} + 4\frac{k\dot{a}(t)x^2a(t)^3}{(-1 + kx^2 + kz^2 + ky^2)^2c^2} - 4\frac{k^2\dot{a}(t)z^2x^2a(t)^3}{(-1 + kx^2 + kz^2 + ky^2)^2c^2}.$$
$$g^{\mu\nu}\,\Gamma^{1}_{\mu\nu} = -2\frac{k^3x^5a(t)^2}{(-1 + kx^2 + kz^2 + ky^2)^2} - 2\frac{k^3z^4xa(t)^2}{(-1 + kx^2 + kz^2 + ky^2)^2} - 4\frac{k^3y^2x^3a(t)^2}{(-1 + kx^2 + kz^2 + ky^2)^2} - 3\frac{kxa(t)^2}{(-1 + kx^2 + kz^2 + ky^2)^2} + 4\frac{k^2z^2xa(t)^2}{(-1 + kx^2 + kz^2 + ky^2)^2} + 4\frac{k^2y^2xa(t)^2}{(-1 + kx^2 + kz^2 + ky^2)^2} - 4\frac{k^3z^2y^2xa(t)^2}{(-1 + kx^2 + kz^2 + ky^2)^2} - 4\frac{k^3z^2x^3a(t)^2}{(-1 + kx^2 + kz^2 + ky^2)^2} - 2\frac{k^3y^4xa(t)^2}{(-1 + kx^2 + kz^2 + ky^2)^2} + 4\frac{k^2x^3a(t)^2}{(-1 + kx^2 + kz^2 + ky^2)^2}.$$
$$g^{\mu\nu}\,\Gamma^{2}_{\mu\nu} = -2\frac{k^3yx^4a(t)^2}{(-1 + kx^2 + kz^2 + ky^2)^2} - 4\frac{k^3z^2y^3a(t)^2}{(-1 + kx^2 + kz^2 + ky^2)^2} + 4\frac{k^2y^3a(t)^2}{(-1 + kx^2 + kz^2 + ky^2)^2} - 3\frac{kya(t)^2}{(-1 + kx^2 + kz^2 + ky^2)^2} - 2\frac{k^3z^4ya(t)^2}{(-1 + kx^2 + kz^2 + ky^2)^2} - 2\frac{k^3y^5a(t)^2}{(-1 + kx^2 + kz^2 + ky^2)^2} + 4\frac{k^2z^2ya(t)^2}{(-1 + kx^2 + kz^2 + ky^2)^2} + 4\frac{k^2yx^2a(t)^2}{(-1 + kx^2 + kz^2 + ky^2)^2} - 4\frac{k^3y^3x^2a(t)^2}{(-1 + kx^2 + kz^2 + ky^2)^2} - 4\frac{k^3z^2yx^2a(t)^2}{(-1 + kx^2 + kz^2 + ky^2)^2}.$$
$$g^{\mu\nu}\,\Gamma^{3}_{\mu\nu} = -2\frac{k^3zy^4a(t)^2}{(-1 + kx^2 + kz^2 + ky^2)^2} - 4\frac{k^3z^3x^2a(t)^2}{(-1 + kx^2 + kz^2 + ky^2)^2} + 4\frac{k^2zx^2a(t)^2}{(-1 + kx^2 + kz^2 + ky^2)^2} - 4\frac{k^3zy^2x^2a(t)^2}{(-1 + kx^2 + kz^2 + ky^2)^2} - 2\frac{k^3z^5a(t)^2}{(-1 + kx^2 + kz^2 + ky^2)^2} - 3\frac{kza(t)^2}{(-1 + kx^2 + kz^2 + ky^2)^2} + 4\frac{k^2z^3a(t)^2}{(-1 + kx^2 + kz^2 + ky^2)^2} + 4\frac{k^2zy^2a(t)^2}{(-1 + kx^2 + kz^2 + ky^2)^2} - 2\frac{k^3zx^4a(t)^2}{(-1 + kx^2 + kz^2 + ky^2)^2} - 4\frac{k^3z^3y^2a(t)^2}{(-1 + kx^2 + kz^2 + ky^2)^2}.$$