```
STUDENT > restart;
STUDENT > # Let M = L2 - L1
STUDENT > eq1:=R^2 = (Cx -(L1x + Mx*t))^2 +R^2 + (Cy -(L1y +
             My*t))^2 +(Cz -(L1z + Mz*t))^2 ;
```

$$eq1 := R^2 = (Cx - L1x - Mx\,t)^2 + R^2 + (Cy - L1y - My\,t)^2 + (Cz - L1z - Mz\,t)^2$$

```
STUDENT > soln:=solve(eq1,t);
```

$$soln := \frac{1}{2}\,(-2\,L1x\,Mx - 2\,L1y\,My + 2\,Cx\,Mx + 2\,Cy\,My + 2\,Cz\,Mz - 2\,L1z\,Mz + 2\,($$

$$-2\,L1y\,My\,Cx\,Mx - Mz^2\,Cx^2 - Mz^2\,Cy^2 - Mz^2\,L1x^2 - Mz^2\,L1y^2 - Mx^2\,L1z^2 - Mx^2\,Cy^2 - Mx^2\,Cz^2$$

$$- Mx^2\,L1y^2 - My^2\,L1z^2 - My^2\,Cx^2 - My^2\,L1x^2 - My^2\,Cz^2 - 2\,L1y\,My\,Cz\,Mz + 2\,L1y\,My\,L1z\,Mz$$

$$+ 2\,Cx\,Mx\,Cy\,My + 2\,Cx\,Mx\,Cz\,Mz - 2\,Cx\,Mx\,L1z\,Mz + 2\,Cy\,My\,Cz\,Mz - 2\,Cy\,My\,L1z\,Mz$$

$$+ 2\,Mz^2\,Cx\,L1x + 2\,Mz^2\,Cy\,L1y + 2\,Mx^2\,Cy\,L1y + 2\,Mx^2\,Cz\,L1z + 2\,My^2\,Cx\,L1x + 2\,My^2\,Cz\,L1z$$

$$+ 2\,L1x\,Mx\,L1y\,My - 2\,L1x\,Mx\,Cy\,My - 2\,L1x\,Mx\,Cz\,Mz + 2\,L1x\,Mx\,L1z\,Mz)^{1/2}\,) \Big/ ($$

$$Mz^2 + Mx^2 + My^2),\ \frac{1}{2}\,(-2\,L1x\,Mx - 2\,L1y\,My + 2\,Cx\,Mx + 2\,Cy\,My + 2\,Cz\,Mz - 2\,L1z\,Mz - 2\,($$

$$-2\,L1y\,My\,Cx\,Mx - Mz^2\,Cx^2 - Mz^2\,Cy^2 - Mz^2\,L1x^2 - Mz^2\,L1y^2 - Mx^2\,L1z^2 - Mx^2\,Cy^2 - Mx^2\,Cz^2$$

$$- Mx^2\,L1y^2 - My^2\,L1z^2 - My^2\,Cx^2 - My^2\,L1x^2 - My^2\,Cz^2 - 2\,L1y\,My\,Cz\,Mz + 2\,L1y\,My\,L1z\,Mz$$

$$+ 2\,Cx\,Mx\,Cy\,My + 2\,Cx\,Mx\,Cz\,Mz - 2\,Cx\,Mx\,L1z\,Mz + 2\,Cy\,My\,Cz\,Mz - 2\,Cy\,My\,L1z\,Mz$$

$$+ 2\,Mz^2\,Cx\,L1x + 2\,Mz^2\,Cy\,L1y + 2\,Mx^2\,Cy\,L1y + 2\,Mx^2\,Cz\,L1z + 2\,My^2\,Cx\,L1x + 2\,My^2\,Cz\,L1z$$

$$+ 2\,L1x\,Mx\,L1y\,My - 2\,L1x\,Mx\,Cy\,My - 2\,L1x\,Mx\,Cz\,Mz + 2\,L1x\,Mx\,L1z\,Mz)^{1/2}\,) \Big/ ($$

$$Mz^2 + Mx^2 + My^2)$$

```
STUDENT > simplify(soln[1]);
```

$$(-L1x\,Mx - L1y\,My + Cx\,Mx + Cy\,My + Cz\,Mz - L1z\,Mz + (-2\,L1y\,My\,Cx\,Mx - Mz^2\,Cx^2$$

$$- Mz^2\,Cy^2 - Mz^2\,L1x^2 - Mz^2\,L1y^2 - Mx^2\,L1z^2 - Mx^2\,Cy^2 - Mx^2\,Cz^2 - Mx^2\,L1y^2 - My^2\,L1z^2$$

$$- My^2\,Cx^2 - My^2\,L1x^2 - My^2\,Cz^2 - 2\,L1y\,My\,Cz\,Mz + 2\,L1y\,My\,L1z\,Mz + 2\,Cx\,Mx\,Cy\,My$$

$$+ 2\,Cx\,Mx\,Cz\,Mz - 2\,Cx\,Mx\,L1z\,Mz + 2\,Cy\,My\,Cz\,Mz - 2\,Cy\,My\,L1z\,Mz + 2\,Mz^2\,Cx\,L1x$$

$$+ 2\,Mz^2\,Cy\,L1y + 2\,Mx^2\,Cy\,L1y + 2\,Mx^2\,Cz\,L1z + 2\,My^2\,Cx\,L1x + 2\,My^2\,Cz\,L1z$$

$$+ 2\,L1x\,Mx\,L1y\,My - 2\,L1x\,Mx\,Cy\,My - 2\,L1x\,Mx\,Cz\,Mz + 2\,L1x\,Mx\,L1z\,Mz)^{1/2}\,) \Big/ ($$

$$Mz^2 + Mx^2 + My^2)$$

```
STUDENT > simplify(soln[2]);
```

$$-(L1x\,Mx + L1y\,My - Cx\,Mx - Cy\,My - Cz\,Mz + L1z\,Mz + (-2\,L1y\,My\,Cx\,Mx - Mz^2\,Cx^2$$

$$- Mz^2\,Cy^2 - Mz^2\,L1x^2 - Mz^2\,L1y^2 - Mx^2\,L1z^2 - Mx^2\,Cy^2 - Mx^2\,Cz^2 - Mx^2\,L1y^2 - My^2\,L1z^2$$

$$- My^2\,Cx^2 - My^2\,L1x^2 - My^2\,Cz^2 - 2\,L1y\,My\,Cz\,Mz + 2\,L1y\,My\,L1z\,Mz + 2\,Cx\,Mx\,Cy\,My$$

$$+ 2\,Cx\,Mx\,Cz\,Mz - 2\,Cx\,Mx\,L1z\,Mz + 2\,Cy\,My\,Cz\,Mz - 2\,Cy\,My\,L1z\,Mz + 2\,Mz^2\,Cx\,L1x$$

$$+\, 2\, Mz^2\, Cy\, L1y + 2\, Mx^2\, Cy\, L1y + 2\, Mx^2\, Cz\, L1z + 2\, My^2\, Cx\, L1x + 2\, My^2\, Cz\, L1z$$

$$+\, 2\, L1x\, Mx\, L1y\, My - 2\, L1x\, Mx\, Cy\, My - 2\, L1x\, Mx\, Cz\, Mz + 2\, L1x\, Mx\, L1z\, Mz\big)^{1/2}\bigg) \bigg/ \big($$

$$Mz^2 + Mx^2 + My^2\big)$$