

□ **1 Check Eq. (12)**

$$\begin{aligned} \text{(%i1)} \quad & f1: (a1+a2+a3)^2 - a1^2; \\ \text{(%o1)} \quad & (a3+a2+a1)^2 - a1^2 \end{aligned}$$

$$\begin{aligned} \text{(%i2)} \quad & f2: (a2+a3) * (a2+a3+2*a1); \\ \text{(%o2)} \quad & (a3+a2) (a3+a2+2 a1) \end{aligned}$$

$$\begin{aligned} \text{(%i3)} \quad & \text{ratsimp}(f1-f2); \\ \text{(%o3)} \quad & 0 \end{aligned}$$

□ **2 Eq. (17)**

$$\begin{aligned} \text{(%i6)} \quad & E17a: -m*M*G/r^2 * (1+gamma^2*A)^(3/2) + m*gamma^3*c^2*A/r; \\ \text{(%o6)} \quad & \frac{A c^2 m \Gamma^3}{r} - \frac{G M m (A \Gamma^2 + 1)^{3/2}}{r^2} \end{aligned}$$

$$\begin{aligned} \text{(%i7)} \quad & E17b: -m*M*G/r^2 + m*Omega * (-M*G/r); \\ \text{(%o7)} \quad & -\frac{G M \Omega m}{r} - \frac{G M m}{r^2} \end{aligned}$$

$$\begin{aligned} \text{(%i8)} \quad & \text{solve}(E17a=E17b, Omega); \\ \text{(%o8)} \quad & [\Omega = \frac{G M (A \Gamma^2 + 1)^{3/2} - A c^2 r \Gamma^3 - G M}{G M r}] \end{aligned}$$

$$\begin{aligned} \text{(%i9)} \quad & \text{expand}(\%); \\ \text{(%o9)} \quad & [\Omega = \frac{(A \Gamma^2 + 1)^{3/2}}{r} - \frac{A c^2 \Gamma^3}{G M} - \frac{1}{r}] \end{aligned}$$