$$\int_0^z \frac{dz}{[\Omega(1+z)^3 + (1-\Omega)(1+z)^{3/2}]^{1/2}}$$

$\Omega = 0$

$$\int_0^z \frac{dz}{((1+z)^{3/2})^{1/2}} = \int_0^z \frac{dz}{(1+z)^{3/4}}$$

$$= \int_0^z (1+z)^{-3/4} dz = 4\left[4(1+z)^{1/4}\right]_0^z$$

$$= 4(1+z)^{1/4} - 4$$

$\Omega = 1$

$$\int_0^z \frac{dz}{(1+z)^{3/2}} = \int_0^z (1+z)^{-3/2} dz$$

$$= -2(1+z)^{-1/2}\Big|_0^z = -2(1+z)^{-1/2} + 2$$

$$= 2 - \frac{2}{\sqrt{1+z}}$$