Answer on Question #45873 – Physics – Astronomy | Astrophysics

Considering, that average distance Jupiter-Sun approximately equals to 5.2 a.u. and 1 l.y. approximately equals to 63 241 a.u, we have

$$D_{S-J} = \frac{5.2}{63241} = 8.22 \cdot 10^{-5} \, l. \, y.$$

The less distance between Jupiter and Earth we can evaluate from consideration, that orbit of Jupiter and Earth are both circular, with radiuses 5.2 a.u. and 1 a.u. respectively.

So,
$$D_{(J-E)_{min}} = 5.2 - 1 = 4.2 \ a. u$$

 $D_{S-J} = \frac{4.2}{63241} = 6.64 \cdot 10^{-5} \ l. y.$

Comments: I.y. – light years, a.u. – astronomical unit