### 1.1.4 solution

We can rewrite

$$\frac{1}{r^2} + \frac{1}{s^2} + \frac{1}{t^2}$$

as

$$\frac{r^2s^2 + r^2t^2 + s^2t^2}{r^2s^2t^2}.$$

By Vietas, we know that $rst = -4$, so we just need to find $r^2s^2 + r^2t^2 + s^2t^2$.

We notice that

$$\begin{aligned}(rs + st + rt)^2 \\ = r^2s^2 + rs^2t + r^2st + s^2rt + s^2t^2 + rst^2 + r^2ts + rt^2s + r^2t^2 \\ = r^2s^2 + r^2t^2 + s^2t^2 + 2rst(r + s + t).\end{aligned}$$

By Vietas Formula, we have

$$26^2 = r^2s^2 + r^2t^2 + s^2t^2 + 2 \cdot (-4) \cdot -20,$$

so

$$r^2s^2 + r^2t^2 + s^2t^2 = 26^2 - 160 = 516.$$

Thus, $\frac{1}{r^2} + \frac{1}{s^2} + \frac{1}{t^2} = \frac{516}{(-4)^2} = \boxed{\frac{129}{4}}$.