1. The data is discrete.
2. (a)



(b) Goodness of fit is bad.

(c) Besides time and price, accessibility and reliability also influence the decision of which service to use.

1. tR=100+0.066VR,tT=25+0.081VT,fR=1.25, fT=2.25, VTOT=1800, VR+VT=VTOT

So, VR=759 tons/day, VT=1041 tons/day



1. 759\*1.25+1041\*2.25=$3291/day. 350+759\*0.75=$919.25/day. 3291+919.25=$4210.25/day. 1800\*2.25=$4050/day. 4210.25>4050. So, the rail service should not be provided.
2. Once again, the rail service should not be provided.

8. rail prices=[0.00, 0.25, 0.50, 0.75, 1.00, 1.25, 1.50, 1.75, 2.00, 2.25, 2.50, 2.75, 3.00].

net profit=[-970.00, -718.75, -481.00, -255.25, -41.50, 160.25, 350.00, 527.75, 694.0, 848.00, 991.00, 1122.50, 1242.50].

9.The profits of the truck service will decrease. The break-even point=$1.05/ton. When rail price is $1.05/ton, VR=778tons/day and VT=1022tons/day. 778\*2.25-778\*1.50=$583.50/day. The associated decrease in profits of the truck service is $583.50/day. Truck operators will not support the new service.

10.total volume=[1500, 1600, 1700, 1800, 1900, 2000, 2100, 2200, 2300, 2400, 2500].

VR=[613, 661, 710, 759, 809, 859, 909, 959, 1010, 1061, 1113].

VT=[887, 939, 990, 1041, 1091, 1141, 1191, 1241, 1290, 1339, 1387].

net profit=[196.75, 184.75, 172.50, 160.25, 147.75, 135.25, 122.75, 110.25, 97.50, 84.75, 71.75].

So, the rail service should be provided, especially when total volume is large.