

STA135 hw4

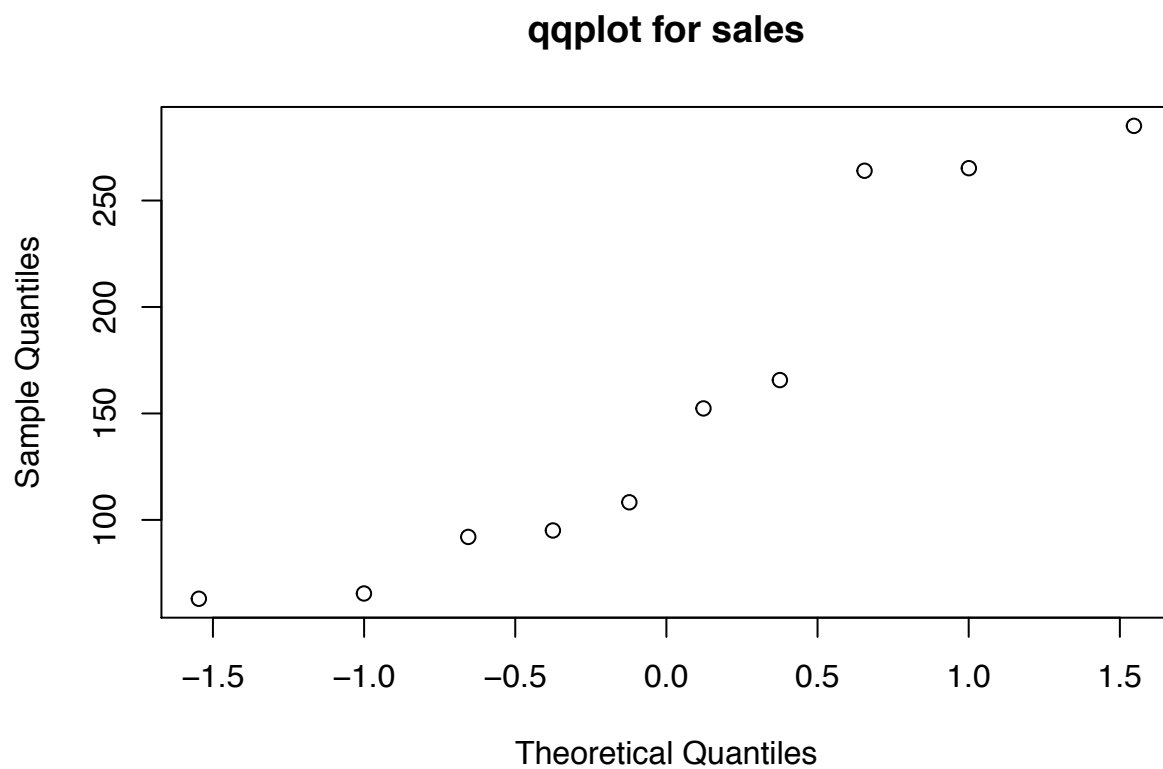
Zhen Zhang

January 24, 2016

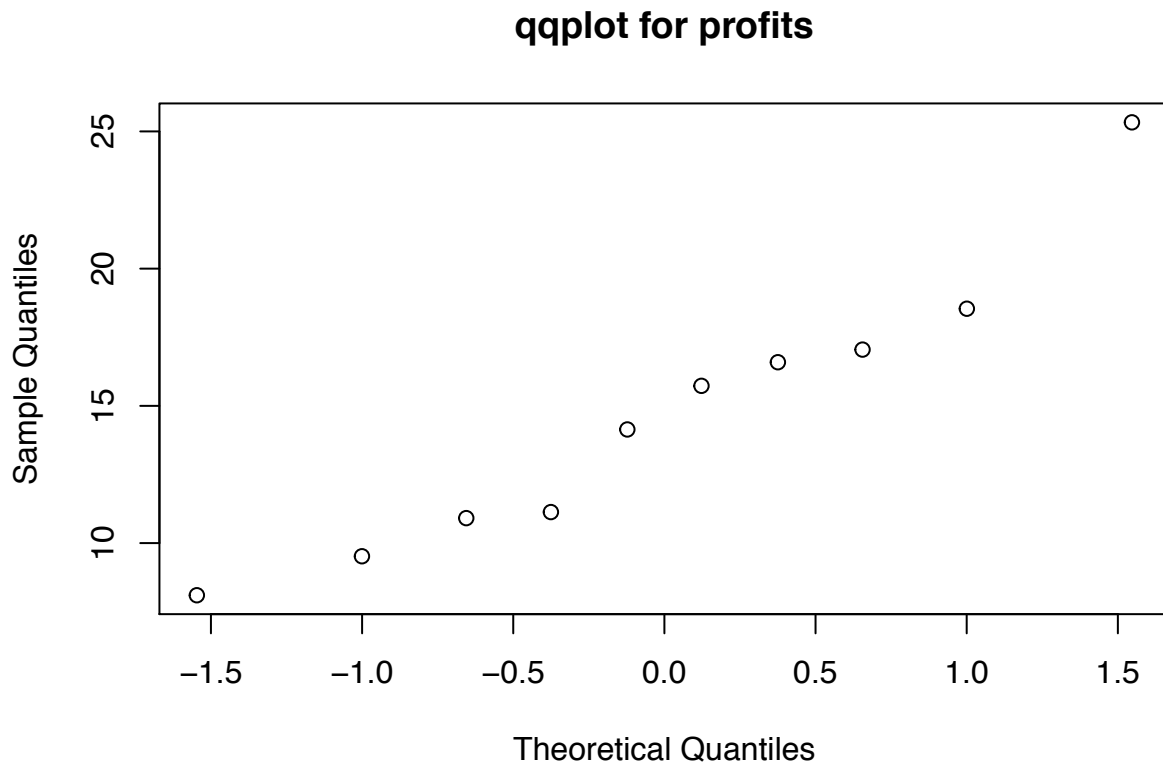
4.24

(a)

```
sales <- c(108.28, 152.36, 95.04, 65.45, 62.97, 263.99, 265.19, 285.06, 92.01, 165.68)
profits <- c(17.05, 16.59, 10.91, 14.14, 9.52, 25.33, 18.54, 15.73, 8.10, 11.13)
qqnorm_sales <- qqnorm(sales, main = 'qqplot for sales')
```



```
qqnorm_profits <- qqnorm(profits, main = 'qqplot for profits')
```



Since the points are not straight, and the sample size is small, we cannot conclude data to be normal distributed.

(b)

```
cor(qqnorm_sales$x, qqnorm_sales$y)
```

```
## [1] 0.9402035
```

```
cor(qqnorm_profits$x, qqnorm_profits$y)
```

```
## [1] 0.9684496
```

The critical point for $n = 10$ at significance level 0.1 is 0.9351, and the correlation is $r_{sales} = 0.9402$, $r_{profits} = 0.9684$, they are larger than the threshold, so we cannot reject the assumption of normal distribution, in either case.