

```

> humerus <- c(24.8,24.59,24.59,24.29,23.81,24.87,25.9,26.11,26.63,26.31,2
> tibia <- c(36.05,35.57,35.57,34.58,34.2,34.73,37.38,37.96,37.46,37.75,38.5
> r <- lm(humerus~tibia)
> summary(r)

```

```

Call:
lm(formula = humerus ~ tibia)

```

```

Residuals:

```

Min	1Q	Median	3Q	Max
-0.35062	-0.24814	-0.11645	0.09539	0.57870

```

Coefficients:

```

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	1.68206	2.55701	0.658	0.527
tibia	0.65100	0.07031	9.260	6.76e-06 ***

```

---

```

```

Signif. codes:

```

```

0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

```

```

Residual standard error: 0.3383 on 9 degrees of freedom

```

```

Multiple R-squared: 0.905, Adjusted R-squared: 0.8944

```

```

F-statistic: 85.74 on 1 and 9 DF, p-value: 6.762e-06

```

```

new.data=data.frame(act=28)

```

```

> predict(regmodel,new.data,interval="confidence",level=0.95)

```

	fit	lwr	upr
1	3.201209	3.061384	3.341033

```

> confint(regmodel,level=0.95)

```

	2.5 %	97.5 %
(Intercept)	1.47859015	2.74950842
act	0.01353307	0.06412118

```

> predict(regmodel,new.data,interval="predict",level=0.95)

```

	fit	lwr	upr
1	3.201209	1.959355	4.443063

```

> qt(0.025, 118, lower.tail=FALSE)

```

```

[1] 1.980272

```

```

> qt(0.05, 118, lower.tail=FALSE)

```

```

[1] 1.65787

```

```
Q4
x <-c (16, 16, 16, 16, 24, 24, 24, 24, 32, 32, 32, 32, 40, 40, 40, 40)
> y <-c (199, 205, 196, 200, 218, 220, 215, 223, 237, 234, 235, 230, 250, 248)
> e=(lm(y~x))
> summary(e)
```

Call:
lm(formula = y ~ x)

Residuals:

Min	1Q	Median	3Q	Max
-5.1500	-2.2188	0.1625	2.6875	5.5750

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	168.60000	2.65702	63.45	< 2e-16 ***
x	2.03438	0.09039	22.51	2.16e-12 ***

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 3.234 on 14 degrees of freedom
Multiple R-squared: 0.9731, Adjusted R-squared: 0.9712
F-statistic: 506.5 on 1 and 14 DF, p-value: 2.159e-12

```
> confint(e)
      2.5 %    97.5 %
(Intercept) 162.9013 174.29875
x            1.8405  2.22825
> newdata2 = data.frame(x=36)
> predict(e, newdata2, interval="confidence")
      fit      lwr      upr
1 241.8375 239.511 244.164
> newdata3 = data.frame(x=43)
> predict(e, newdata3, interval="confidence")
      fit      lwr      upr
1 256.0781 252.6922 259.464
> predict(e, newdata3, interval="predict")
```

Q6

```
model1=lm(brozek~age, data= fat)
```

```
summary(model1)
```

```
model2=lm(brozek~weight, data= fat)
```

```
summary(model2)
```

```
model3=lm(brozek~height, data= fat)
```

```
summary(model3)
```

```
model4=lm(brozek~neck, data= fat)
```

```
summary(model4)
```

```
model5=lm(brozek~chest, data= fat)
```

```
summary(model5)
```

```
model6=lm(brozek~abdom, data= fat)
```

```
summary(model6) model7=lm(brozek~hip, data= fat)
```

```
summary(model7)
```

```
model8=lm(brozek~thigh, data= fat)
```

```
summary(model8)
```

```
model9=lm(brozek~knee, data= fat)
```

```
summary(model9)
```

```
model10=lm(brozek~ankle, data= fat)
```

```
model10=lm(brozek~ankle, data= fat)
```

```
summary(model10)
```

```
model11=lm(brozek~biceps, data= fat)
```

```
summary(model11)
```

```
model12=lm(brozek~forearm, data= fat)
```

```
summary(model12)
```

```
model13=lm(brozek~wrist, data= fat)
```

```
summary(model13) confint(model6)
```