SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.92936641
R Square	0.86372192
Adjusted R Sq	0.84668716
Standard Erro	942.266054
Observations	10

ANOVA

	df	SS	MS	F	Significance F
Regression	1	45017877.5	45017877.5	50.7034981	9.9937E-05
Residual	8	7102922.54	887865.317		
Total	9	52120800			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	28818.0037	3267.25684	8.82024435	2.1489E-05	21283.6959	36352.3115
X Variable 1	-1439.0064	202.089512	-7.1206389	9.9937E-05	-1905.0257	-972.98719

Lower 95.0%	Upper 95.0%
21283.6959	36352.3115
-1905.0257	-972.98719

t-Test: Two-Sample Assuming Equal Variances

	Weight	Price
Mean	15.9	6033.33333
Variance	2.2675	4861975
Observations	9	9
Pooled Varian	2430988.63	
Hypothesized	0	
df	16	
t Stat	-8.1870243	
P(T<=t) one-ta	2.0518E-07	
t Critical one-	1.74588368	
P(T<=t) two-ta	4.1037E-07	
t Critical two-	2.1199053	

Model	Weight	Price
Fierro 7B	17.9	2200
HX 5000	16.2	6350
Durbin Ultralight	15.0	8470
Schmidt	16.0	6300
WSilton Advanced	17.3	4100
bicyclette vélo	13.2	8700
Supremo Team	16.3	6100
XTC Racer	17.2	2680
D'Onofrio Pro	17.7	3500
Americana #6	14.2	8100

Price vs Weight
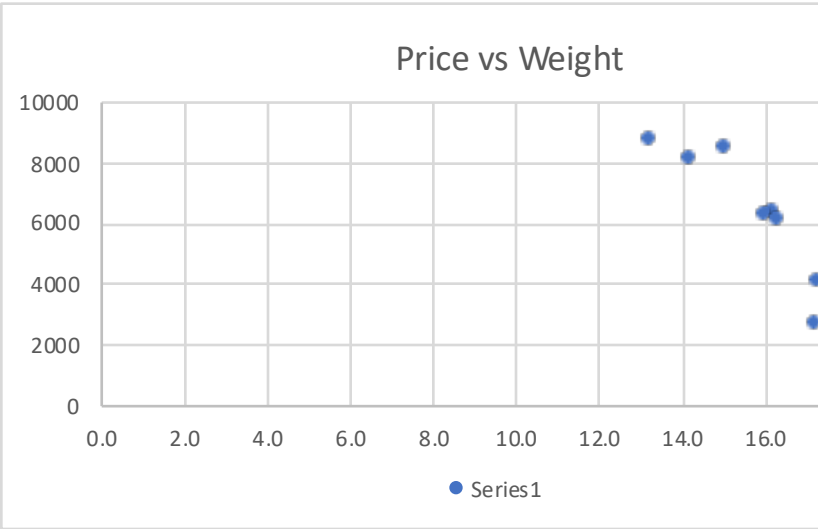
3347.7

7233
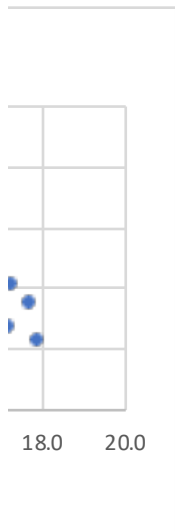
1. *Bicycling World*, a magazine devoted to cycling, reviews hundreds of bicycles thro
Road-Race category contains reviews of bicycles used by riders primarily interested
important factors in selecting a bicycle for racing is its weight. The following data sh
and price ($) for ten racing bicycles reviewed by the magazine:

A. Develop a scatter chart with weight as the independent variable. What does the s
about the relationship between the weight and price of these bicycles?
There is an inverse relationship between weight and price.
B. Use the data to develop an estimated regression equation that could be used to e
bicycle, given its weight. What is the estimated regression model?
y=28818-1439x
C. Test whether each of the regression parameters and is equal to zero at a 0.05 lev
are the correct interpretations of the estimated regression parameters? Are these in
reasonable?
**The t-stat indicates an inverse relationship between weight and price. The t-stat r
statistical significance when a=0.05, and higher weights are associated with lower
indicates statistical significance with it being less than 0.01.**
D. How much of the variation in the prices of the bicycles in the sample does the reg
estimated in part b explain?
0.864
E. The manufacturers of the D'Onofrio Pro plan to introduce the 15-pound D'Onofri
year. Use the regression model you estimated in part a to predict the price of the D'
$7233
F. The owner of Michele's Bikes of Nesika Beach, Oregon is trying to decide ir
make room for the D'Onofrio Elite bicycle in its inventory. She is convinced th
to sell the D'Onofrio Elite for more than $7,000 and so she will not make roor
the bicycle unless its estimated price is less than $7,000. Under this condition
regression model you estimated in part (A), what decision should the owner
make?
The estimated price is $3347.7, so she should put this in the store's inventor

18.0   20.0

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in racing. One of the most

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scatter chart indicate

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of Michele's Bikes

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SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.93460517
R Square	0.87348682
Adjusted R Sq	0.8497656
Standard Erro	5.75657457
Observations	20

ANOVA

	df	SS	MS	F	Significance F
Regression	3	3660.73959	1220.24653	36.8230122	2.064E-07
Residual	16	530.210412	33.1381507		
Total	19	4190.95			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	-91.759498	15.2227601	-6.0277833	1.7576E-05	-124.03031	-59.488689
Age	1.07674106	0.16596361	6.48781412	7.4873E-06	0.72491392	1.42856819
Blood Pressur	0.25181347	0.04522552	5.56795102	4.2437E-05	0.15593966	0.34768729
Smoker	8.73987106	3.00081543	2.9124987	0.01017355	2.37842652	15.1013156

Lower 95.0%	Upper 95.0%	
-124.03031	-59.488689	34.2661222
0.72491392	1.42856819	-24.025788
0.15593966	0.34768729	22.3134314
2.37842652	15.1013156	

Risk	Age	Blood Pressure	Smoker
12	57	152	0
24	67	163	0
13	58	155	0
56	86	177	1
28	59	196	0
51	76	189	1
18	56	155	1
31	78	120	0
37	80	135	1
15	78	98	0
22	71	152	0
36	70	173	1
15	67	135	1
48	77	209	1
15	60	199	0
36	82	119	1
8	66	166	0
34	80	125	1
3	62	117	0
37	59	207	1

2. A recent 10-year study conducted by a research team at the Great Falls Medical School was c
assess how age, systolic blood pressure, and smoking relate to the risk of strokes. Assume that t
data are from a portion of this study. Risk is interpreted as the probability (times 100) that the p
have a stroke over the next 10-year period. For the smoking variable, define a dummy variable v
indicating a smoker and 0 indicating a nonsmoker.

A. Develop an estimated multiple regression equation that relates risk of a stroke to the person'
blood pressure, and whether the person is a smoker.

B. Is smoking a significant factor in the risk of a stroke? Explain. Use a 0.05 level of significance.
The p-value is equal to 0.01, which is less than 0.05, so yes.
C. What is the probability of a stroke over the next ten years for Art Speen, a 68-yearold smoker
systolic blood pressure of 175? What action might the physician recommend for this patient?
34.3%
D. An insurance company will only sell its Select policy to people for whom the probability of a s
next ten years is less than .01. If a smoker with a systolic blood pressure of 230 applies for a Sele
under what condition will the company sell him the policy if it adheres to this standard?
y=-91.759498+1.07674106 (age)+0.25181347 (230)+8.73987106 (1).
=-24.025788
-24.025788+1.07674106 (age)<0.01
Age<24.025788/1.07674106
Age<22.3
The insurance company can sell its Select policy to him if he is less than 22 years old.
E. What other factors could be included in the model as independent variables? Choose the corr
below.
Gender, stress level, weight, whether or not there's a history of heart issues

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stroke in the
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