

i	V(ýška)	H(motnost)	P(ohlaví)	Vi-mV	zVi	Hi-mH	zHi	zVi x zHi
1	172	85	1	-0.7	-0.05001	9.75	0.61408	-0.03071
2	170	59	0	-2.7	-0.1929	-16.25	-1.02347	0.197431
3	149	86	0	-23.7	-1.69327	10.75	0.677063	-1.14645
4	176	79	1	3.3	0.235771	3.75	0.236185	0.055686
5	185	86	1	12.3	0.878784	10.75	0.677063	0.594992
6	162	57	0	-10.7	-0.76447	-18.25	-1.14943	0.878707
7	182	73	1	9.3	0.664446	-2.25	-0.14171	-0.09416
8	190	96	1	17.3	1.236013	20.75	1.306888	1.615331
9	154	55	0	-18.7	-1.33604	-20.25	-1.2754	1.703978
10	167	63	1	-5.7	-0.40724	-12.25	-0.77154	0.314202
11	204	93	0	31.3	2.236255	17.75	1.117941	2.5
12	155	52	1	-17.7	-1.26459	-23.25	-1.46434	1.851798
13	174	80	1	1.3	0.09288	4.75	0.299167	0.027787
14	185	110	0	12.3	0.878784	34.75	2.188644	1.923345
15	169	70	1	-3.7	-0.26435	-5.25	-0.33066	0.087409
16	173	65	0	0.3	0.021434	-10.25	-0.64557	-0.01384
17	189	74	0	16.3	1.164567	-1.25	-0.07873	-0.09168
18	154	60	0	-18.7	-1.33604	-15.25	-0.96048	1.283243
19	176	68	1	3.3	0.235771	-7.25	-0.45662	-0.10766
20	168	94	0	-4.7	-0.3358	18.75	1.180923	-0.39655

kontrola

m	172.7	75.25				rVH	0.586993	0.586993
s	13.997	15.8774086				rVP		0.139274
						rHP		-0.00323

kontrola

m	172.7
s	13.997

Poznámka

kovariance

$cVH = sV * rVH$

$rVH = cVH / sV$

	V(yška)	H(motnost)
V(yška)	1	
H(motnost)	0.586993	1

r <sup>2</sup>	kovariance	t	df	p
0.34456	130.4474	3.076115	18	0.007111
0.019397		0.596703	18	0.326638
1.04E-05		-0.01371	18	0.393404

### Calculation Notes:

- You will use technology to calculate the  $p$ -value.
- The  $p$ -value is calculated using the test statistic  $t$ .
- The formula for the test statistic  $t$  has the same sign as the correlation coefficient  $r$ .
- The  $p$ -value is the combined probability of observing a test statistic as extreme as the one calculated, assuming the null hypothesis is true.

	t	N		
		20	50	100
různé hodnoty	0	0	0	0
r <sub>VH</sub> * s <sub>H</sub>	0.1	0.426401	0.696311	0.994937
	0.2	0.866025	1.414214	2.020726
	0.3	1.334249	2.178819	3.113247
(s <sub>V</sub> *s <sub>H</sub> )	0.4	1.85164	3.023716	4.320494
	0.5	2.44949	4	5.715476
	0.6	3.181981	5.196152	7.424621
	0.7	4.15862	6.790998	9.703446
	0.8	5.656854	9.237604	13.19933
	0.9	8.759957	14.30495	20.4399
	0.99	29.77453	48.6216	69.4739

Calculate the  $p$ -value. The following describes the calculations to compute the  $p$ -value using a  $t$ -distribution with  $n - 2$  degrees of freedom.

The test statistic is  $t = \frac{r\sqrt{n-2}}{\sqrt{1-r^2}}$ . The value of the test statistic,  $t$ , is shown in the computer output as the correlation coefficient  $r$ .

area in both tails.

200	1000
0	0
1.414214	3.175029
2.872281	6.448514
4.425203	9.934953
6.141196	13.7875
8.124038	18.23915
10.55344	23.69335
13.79258	30.96551
18.76166	42.12152
29.05349	65.22754
98.75094	221.7042

the test statistics and the  $p$ -value:

enter or calculator output along with the  $p$ -value. The test

i	V(ýška)	H(motnost)	P(ohlaví)	Vi-mV	zVi	Hi-mH	zHi	zVi x zHi	Hi.stř
1	172	85	1	-0.7	-0.05001	9.75	0.61408	-0.03071	74.78389
2	170	59	0	-2.7	-0.1929	-16.25	-1.02347	0.197431	73.45215
3	149	86	0	-23.7	-1.69327	10.75	0.677063	-1.14645	59.46889
4	176	79	1	3.3	0.235771	3.75	0.236185	0.055686	77.44737
5	185	86	1	12.3	0.878784	10.75	0.677063	0.594992	83.4402
6	162	57	0	-10.7	-0.76447	-18.25	-1.14943	0.878707	68.12519
7	182	73	1	9.3	0.664446	-2.25	-0.14171	-0.09416	81.44259
8	190	96	1	17.3	1.236013	20.75	1.306888	1.615331	86.76954
9	154	55	0	-18.7	-1.33604	-20.25	-1.2754	1.703978	62.79824
10	167	63	1	-5.7	-0.40724	-12.25	-0.77154	0.314202	71.45454
11	204	93	0	31.3	2.236255	17.75	1.117941	2.5	96.09172
12	155	52	1	-17.7	-1.26459	-23.25	-1.46434	1.851798	63.46411
13	174	80	1	1.3	0.09288	4.75	0.299167	0.027787	76.11563
14	185	110	0	12.3	0.878784	34.75	2.188644	1.923345	83.4402
15	169	70	1	-3.7	-0.26435	-5.25	-0.33066	0.087409	72.78628
16	173	65	0	0.3	0.021434	-10.25	-0.64557	-0.01384	75.44976
17	189	74	0	16.3	1.164567	-1.25	-0.07873	-0.09168	86.10368
18	154	60	0	-18.7	-1.33604	-15.25	-0.96048	1.283243	62.79824
19	176	68	1	3.3	0.235771	-7.25	-0.45662	-0.10766	77.44737
20	168	94	0	-4.7	-0.3358	18.75	1.180923	-0.39655	72.12041

m 172.7 75.25  
s 13.997 15.8774086

kontrola  
m 172.7  
s 13.997

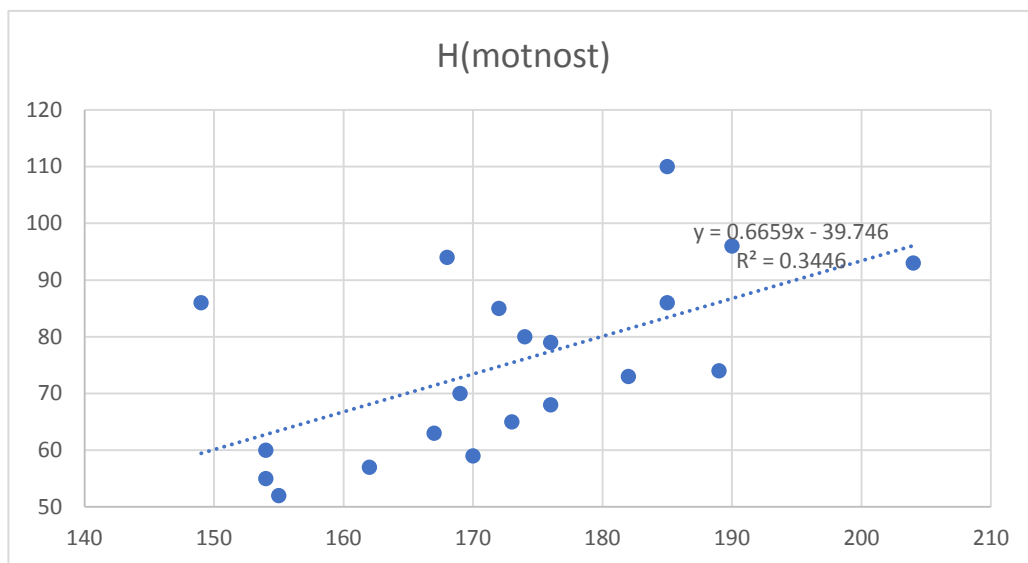
kontrola  
rVH 0.586993 0.586993  
rVP 0.139274  
rHP -0.00323  
  
R 0.586993  
pro vztah  $H = a + bV + e$

Poznámka kovariance  
  
cVH = sV \*  
  
rVH = cVH/

ei

10.21611  
-14.4522  
26.53111  
1.55263  
2.559803  
-11.1252  
-8.44259  
9.230455  
-7.79824  
-8.45454  
-3.09172  
-11.4641  
3.884369  
26.5598  
-2.78628  
-10.4498  
-12.1037  
-2.79824  
-9.44737  
21.87959

b 0.66587  
a -39.7457



r2	kovariance	t	df	p
0.34456	130.4474	3.076115	18	0.007111
0.019397		0.596703	18	0.326638
1.04E-05		-0.01371	18	0.393404
0.34456				

rVH \* sH

(sV\*sH)

i	V(ýška)	H(motnost)	P(ohlaví)	Vi-mV	zVi	Hi-mH	zHi	zVi x zHi	Hi.stř
1	172	85	1	-0.7	-0.05001	9.75	0.61408	-0.03071	73.43279
2	170	59	0	-2.7	-0.1929	-16.25	-1.02347	0.197431	74.75684
3	149	86	0	-23.7	-1.69327	10.75	0.677063	-1.14645	60.48702
4	176	79	1	3.3	0.235771	3.75	0.236185	0.055686	76.15085
5	185	86	1	12.3	0.878784	10.75	0.677063	0.594992	82.26649
6	162	57	0	-10.7	-0.76447	-18.25	-1.14943	0.878707	69.32072
7	182	73	1	9.3	0.664446	-2.25	-0.14171	-0.09416	80.22794
8	190	96	1	17.3	1.236013	20.75	1.306888	1.615331	85.66406
9	154	55	0	-18.7	-1.33604	-20.25	-1.2754	1.703978	63.8846
10	167	63	1	-5.7	-0.40724	-12.25	-0.77154	0.314202	70.03521
11	204	93	0	31.3	2.236255	17.75	1.117941	2.5	97.86037
12	155	52	1	-17.7	-1.26459	-23.25	-1.46434	1.851798	61.88103
13	174	80	1	1.3	0.09288	4.75	0.299167	0.027787	74.79182
14	185	110	0	12.3	0.878784	34.75	2.188644	1.923345	84.94957
15	169	70	1	-3.7	-0.26435	-5.25	-0.33066	0.087409	71.39424
16	173	65	0	0.3	0.021434	-10.25	-0.64557	-0.01384	76.79539
17	189	74	0	16.3	1.164567	-1.25	-0.07873	-0.09168	87.66764
18	154	60	0	-18.7	-1.33604	-15.25	-0.96048	1.283243	63.8846
19	176	68	1	3.3	0.235771	-7.25	-0.45662	-0.10766	76.15085
20	168	94	0	-4.7	-0.3358	18.75	1.180923	-0.39655	73.39781

m 172.7 75.25  
s 13.997 15.8774086

kontrola

rVH 0.586993 0.586993  
rVP 0.139274  
rHP -0.00323

kontrola  
m 172.7  
s 13.997

R 0.593233  
pro vztah  $H = a + bV + e$

Poznámka kovariance

$cVH = sV * rVH$

$rVH = cVH /$

i	V(ýška)	P(ohlaví)	H(motnost)
1	172	1	85
2	170	0	59
3	149	0	86
4	176	1	79
5	185	1	86
6	162	0	57
7	182	1	73
8	190	1	96
9	154	0	55

10	167	1	63
11	204	0	93
12	155	1	52
13	174	1	80
14	185	0	110
15	169	1	70
16	173	0	65
17	189	0	74
18	154	0	60
19	176	1	68
20	168	0	94



ei			ei	VÝSLEDEK
11.56721			10.21611	
-15.7568			-14.4522	
25.51298	a	-40.7608	26.53111	<u>Regresní:</u>
2.849152	b1	0.679515	1.55263	Násobné R
3.733514	b2	-2.68309	2.559803	Hodnota sp
-12.3207			-11.1252	Nastavená
-7.22794	SS	3104.115	-8.44259	Chyba stř. l
10.33594			9.230455	<u>Pozorování</u>
-8.8846	R	0.593233	-7.79824	
-7.03521	R2	0.351925	-8.45454	<u>ANOVA</u>
-4.86037			-3.09172	
-9.88103			-11.4641	<u>Regrese</u>
5.208183			3.884369	Rezidua
25.05043			26.5598	<u>Celkem</u>
-1.39424			-2.78628	
-11.7954			-10.4498	
-13.6676			-12.1037	<u>Hranice</u>
-3.8846			-2.79824	V(ýška)
-8.15085			-9.44737	<u>P(ohlaví)</u>
20.60219			21.87959	

r2	kovariance	t	df	p	REZIDUA
0.34456	130.4474	3.076115	18	0.007111	
0.019397		0.596703	18	0.326638	<u>Pozorování</u>
1.04E-05		-0.01371	18	0.393404	1
					2
0.351925					3
					4
					5
					6
					7
					8
					9
rVH * sH					10
					11
(sV*sH)					12
					13
					14
					15
					16
					17
					18
					19
					<u>20</u>



<i>statistika</i>
0.593233
0.351925
0.275681
13.51277
20

<i>Rozdíl</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>ýznamnost F</i>
2	1685.635	842.8174	4.615774	0.02505
17	3104.115	182.595		
19	4789.75			

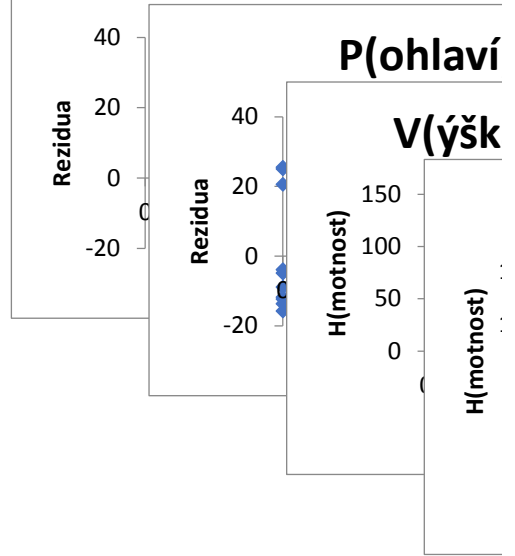
<i>Koeficienty</i>	<i>ba stř. hydr.</i>	<i>t Stat</i>	<i>Hodnota P</i>	<i>Dolní 95%</i>	<i>Horní 95%</i>	<i>Dolní 95,0%</i>	<i>Horní 95,0%</i>
-40.7691	38.44023	-1.06059	0.303715	-121.871	40.33266	-121.871	40.33266
0.679562	0.223665	3.038301	0.007422	0.20767	1.151454	0.20767	1.151454
-2.68233	6.102572	-0.43954	0.665805	-15.5576	10.19297	-15.5576	10.19297

PRAVDĚPODOBNOST

<i>ivované H(moi</i>	<i>Rezidua</i>	<i>novaná rezidua</i>	<i>Percentil</i>	<i>H(motnost)</i>
73.43314	11.56686	0.904947	2.5	52
74.75635	-15.7564	-1.23272	7.5	55
60.48556	25.51444	1.996154	12.5	57
76.15139	2.848614	0.222865	17.5	59
82.26744	3.732559	0.292021	22.5	60
69.31986	-12.3199	-0.96386	27.5	63
80.22876	-7.22876	-0.56555	32.5	65
85.66525	10.33475	0.808552	37.5	68
63.88336	-8.88336	-0.695	42.5	70
70.03533	-7.03533	-0.55042	47.5	73
97.86145	-4.86145	-0.38034	52.5	74
61.88059	-9.88059	-0.77302	57.5	79
74.79226	5.207737	0.407434	62.5	80
84.94978	25.05022	1.959835	67.5	85
71.39445	-1.39445	-0.1091	72.5	86
76.79504	-11.795	-0.9228	77.5	86
87.66802	-13.668	-1.06933	82.5	93
63.88336	-3.88336	-0.30382	87.5	94
76.15139	-8.15139	-0.63773	92.5	96
73.39723	20.60277	1.611883	97.5	110



# V(ýška) Graf s





rezidui

) Graf s rezidui

a) Graf porovnání hodnot

P(ohlaví) Graf porovnání hodnot

