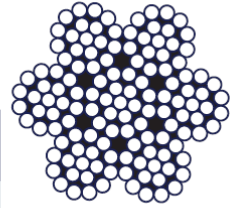


Box and label answers, show work.

STAINLESS STEEL (T304)



7 X 19

Wire rope (cable) is a common structural material in buildings, logging applications and even ski lifts. It's construction is classified by how many wires are in each bundle and how many bundles it is comprised of.

Diameter in Inches	Construction	Breaking Strength (lbs)	Approx. Weight per Foot (lbs)
1/16	7x7	480	.075
3/32	7x7	920	.016
1/8	7x7	1,760	.028
1/8	7x19	1,760	.029
3/16	7x7	3,700	.062
3/16	7x19	3,700	.065
1/4	7x19	6,400	.11
5/16	7x19	9,000	.173
3/8	7x19	12,000	.243

Consider a sample of 40 breaking strengths of 1/4-inch 7x19 stainless steel wire rope:

Strength (lbs)
6,850
7,620
7,870
8,300
6,980
7,880
8,390
8,120
7,750
6,960
8,570
8,110
7,430
8,660
8,040
9,130
7,250
8,720
7,960
7,200
6,810
8,670
8,170
7,650
8,880
8,030
8,760
9,260
6,870
7,710
6,570
8,990
9,380
8,330
6,570
7,760
8,110
8,000
6,900
7,220

9.2:

1. Use your calculator to create a 98% confidence interval for the sample mean.
2. Based on your work in question 1, suggest a breaking strength you would publish, explain.

9.1:

3. Use your calculator to create a 95% confidence interval for the sample proportion of cable strengths over 7,000 lbs. (note: $npq < 10$... proceed anyway)
4. Based on your work in question 3, find the sample size that would be necessary to have an error of at most 1%.

