

FINDING YOURSELF IN A DISTRIBUTION - chapters 5 and 6

200 people took a 100-point exam. Here are the scores.

50	51	53	56	57	58	59	59	59	59
60	61	62	63	63	63	63	63	63	63
64	64	64	64	64	64	64	64	65	66
66	66	66	66	66	66	66	66	66	66
67	67	67	67	67	67	67	67	67	67
68	68	68	68	68	68	69	69	69	69
70	70	70	70	70	70	70	70	70	70
71	71	71	71	71	71	71	71	71	71
72	72	72	72	72	72	73	73	73	73
73	73	73	73	73	73	73	73	73	73
74	75	75	75	75	75	75	75	75	75
75	75	75	76	76	76	76	76	76	76
77	77	77	77	78	78	78	78	78	79
79	79	79	79	79	79	79	79	79	80
81	81	81	81	81	82	82	82	82	82
83	83	83	83	83	83	83	83	83	83
84	84	84	84	84	84	84	84	84	84
84	85	86	86	86	87	87	87	87	87
88	88	89	89	89	89	89	90	90	90
90	91	91	91	91	92	94	96	96	100

5 | 013
5 | 6789999
6 | 0123333333344444444
6 | 56666666666667777777778888889999
7 | 00000000011111111122222233333333333334
7 | 555555555555666666667777888889999999999
8 | 011111222223333333333444444444444
8 | 56667777788899999
9 | 0000111124
9 | 66
10 | 0

Commonly used marks in a distribution (measures of position):

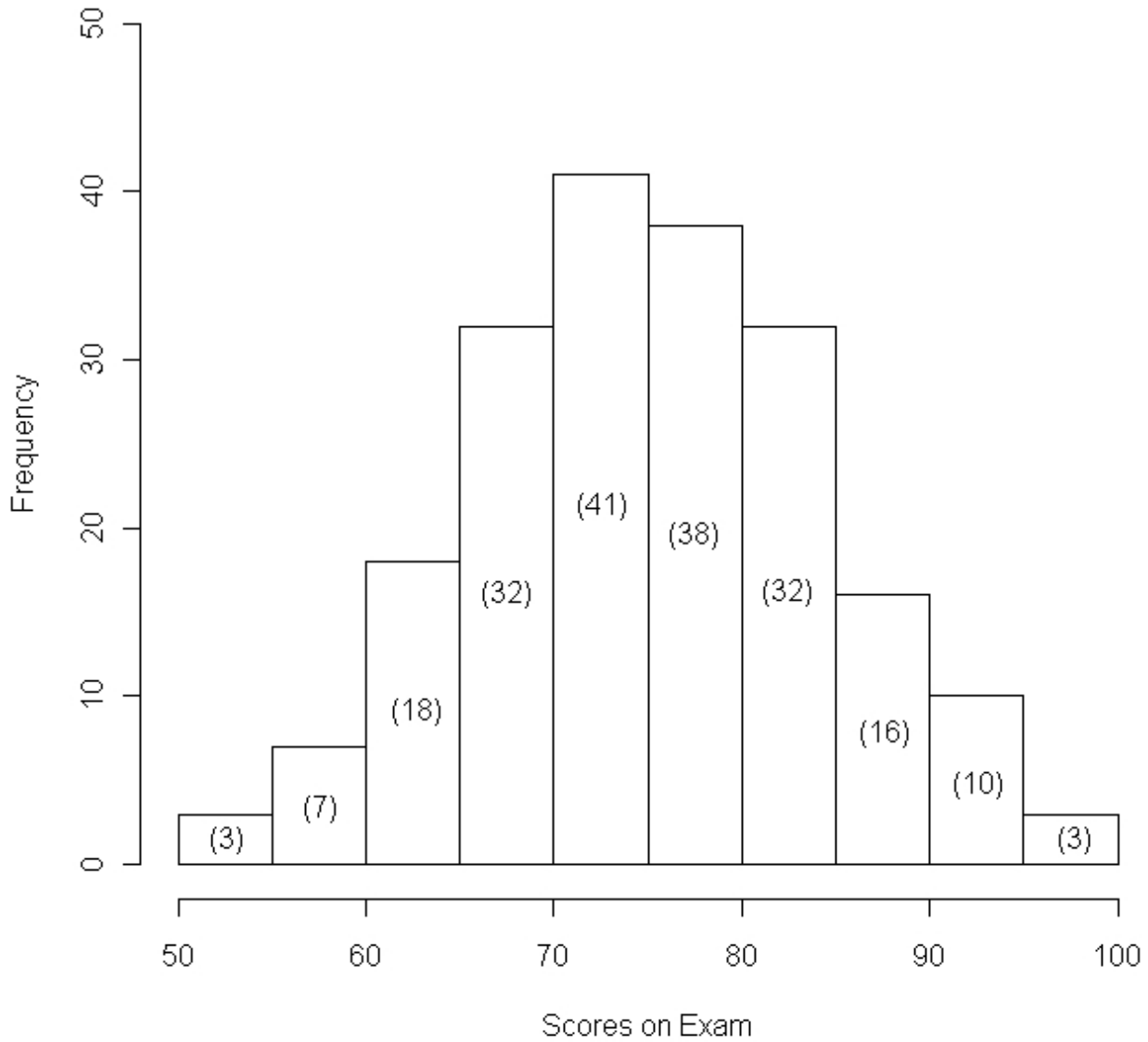
- 1) median
 - X > Md puts you in the top 50%
 - X < Md puts you in the bottom 50%
 - (question: could we do this with the mean?)
- 2) quartiles
 - X < Q1 puts you in the bottom 25%
 - Q1 < X < Q2 puts you in the second 25%
 - Q2 < X < Q3 puts you in the third 25%
 - X > Q3 puts you in the top 25%
- 3) deciles
- 4) percentiles

definitions:

percentile - a percentile is a mark or score in a distribution at or below which a certain percentage of scores fall
percentile rank - the percentile rank of a score is the percentage of scores that fall at or below that value (some sources say this should be rounded to the nearest whole percentage)

Note:
sum of X = 14,950
sum of X-squared = 1,135,130

Histogram



Note: bars in this histogram include the lower value but not the upper value (except for the top bar, which includes one score of 100).