Math 164 (Spring 2008)

Solutions for Homework #2

Section 2.2:

15, 16, 17. 18, 20, 22, 23, 24, 25, 26, 40, 46, 48

#15 The original set of data is

10, 11, 14, 21, 24, 24, 27, 29, 33, 35, 35, 35, 37, 37, 38, 40, 40, 41, 42, 46, 46, 48, 49, 49, 53, 53, 55, 58, 61, 62

#16 The original set of data is

40, 44, 47, 52, 52, 53, 59, 59, 63, 64, 65, 68, 68, 69, 70, 71, 71, 73, 76, 76, 82, 83, 88

#17 The original set of data is

1.2, 1.4, 1.6, 2.1 2.4, 2.7, 2.7, 2.9, 3.3, 3.3, 3.3, 3.5, 3.7, 3.7, 3.8, 4.0, 4.1, 4.1, 4.3, 4.6, 4.6, 4.8, 4.8, 4.9, 5.3, 5.4, 5.5, 5.8, 6.2, 6.4

#18 The original set of data is

12.3, 12.7, 12.9, 12.9, 13.0, 13.4, 13.5, 13.7, 13.8, 13.9, 13.9, 14.2, 14.4, 14.4, 14.7, 14.7, 14.8, 14.9, 15.1, 15.2, 15.2, 15.5, 15.6, 16.0, 16.3

#20 (a) 8 classes

(b) lower class limits: 0, 1.0, 2.0, 3.0, 4.0, 5.0, 6.0, 7.0

upper class limits: 0.9, 1.9, 2.9, 3.9, 4.9, 5.9, 6.9, 7.9

(c) class width: 1.0

#22 (a) 6 classes

(b) lower class limits: 15, 20, 25, 30, 35, 40

upper class limits: 19, 24, 29, 34, 39, 44

(c) class width: 5

#23 (a) & (b) & (c) (See the solutions in the book for table and graphs.)

$28.9 + 35.7 + 35.1 + 24.7 = 124.4$. $28.9/124.4 \approx 0.232315113 \approx 0.2323 = 23.23\%$

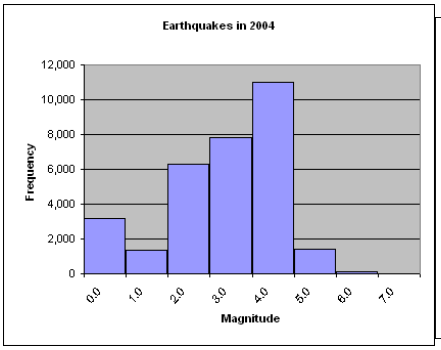
Thus 23.23% of them are 25 to 34 years old.

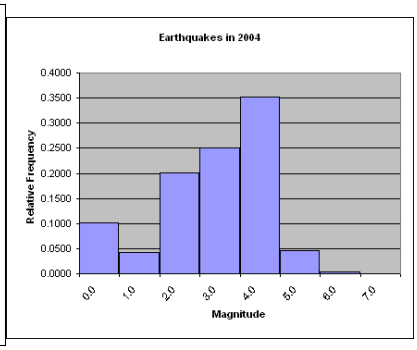
$28.9 + 35.7 = 64.6$, $64.6/124.4 \approx 0.519292605 \approx 0.5193 = 51.93\%$

Thus 51.93% are 44 years or younger.

#24 (a) (b) (c)

Magnitude	Relative Freq
0.0 - 0.9	0.1019
1.0 - 1.9	0.0430
2.0 - 2.9	0.2018
3.0 - 3.9	0.2508
4.0 - 4.9	0.3518
5.0 - 5.9	0.0458
6.0 - 6.9	0.0045
7.0 - 7.9	0.0004





The sum of all frequencies is 31,199. $10{,}975/31{,}199 \approx 0.351774095 \approx 0.3518 = 35.18\%$.

So 35.18% of them registered 4.0 to 4.9.

4.9 or less: There are 29,29.617. So $29{,}617/31{,}199 \approx 0.949293247 \approx 0.9493 = 94.93\%$

So 94.93% of them registered 4.9 or less.

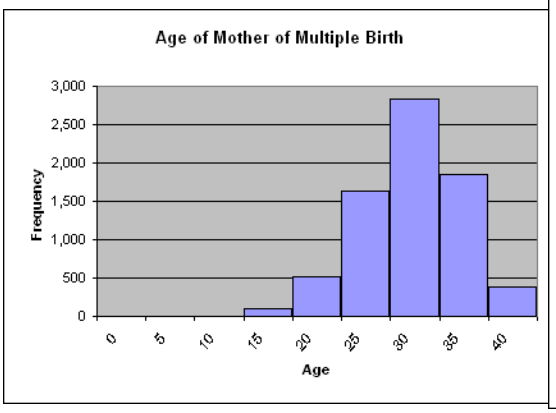
#25 (a) & (b) & (c) (See the solutions in the book for table and graphs.)

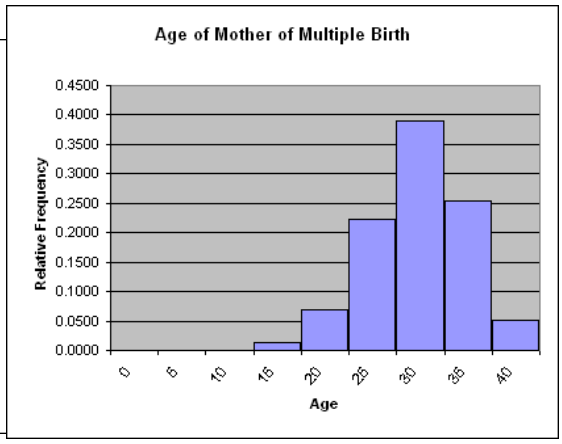
300 to 399 beds: $5{,}607/22{,}826 \approx 0.245640936 \approx 0.2456 = 24.56\%$

300 or more beds: $9{,}200/22{,}826 \approx 0.403049154 \approx 0.4030 = 40.30\%$

#26 (a) (b) (c)

Age	Relative Freq.
15 - 19	0.0128
20 - 24	0.0702
25 - 29	0.2235
30 - 34	0.3888
35 - 39	0.2530
40 - 44	0.0518





40 to 44 years old: $377/7{,}284 \approx 0.051757276 \approx 0.0518 = 5.18\%$

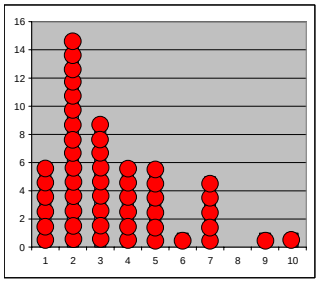
24 years or younger: $604/7{,}284 \approx 0.082921472 \approx 0.0829 = 8.29\%$

#40 (a)

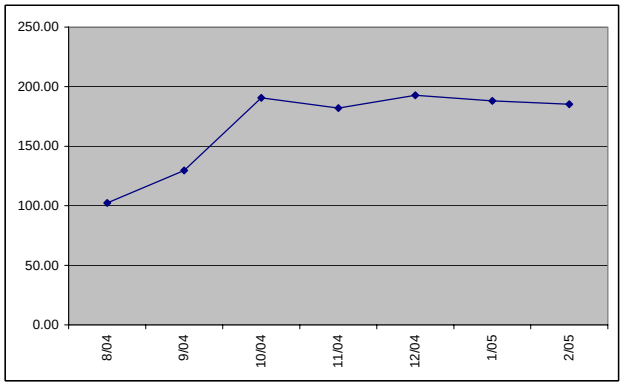
0	9														
1	2	5	6	6	6	7	7	8	9	9	9				
2	0	1	1	1	2	3	3	3	3	4	5	5	5	6	8
3	0	3	6	8											
4	7	8	8	9											
5	2	4	9												
6	2	6													

(b) Skewed right

#46



#48



Section 2.2:

4, 12

#4 (a) The vertical axis doesn't start from 0, potentially causing a reader to perceive a an increase in the proportion of union members among employed people more pronounced than the actual increase. (b) (Redraw--Do it yourself.)

#12 No. The vertical axis doesn't start from 0, so the picture is misleading. In reality it only decreased by $(0.202 - 0.183)/0.202 \approx 0.094$, i.e. only 9.4%, or roughly 10%.

Section 3.1:

11--22 (both even and odd)

#11 $\bar{x} = 11$ #12 $\bar{x} = 82$ #13 $\mu = 9$ #14 $\mu = 15$

#15 \$2.4 million #16 32

#17 \$381.75, \$414.50, none #18 \$41.407, \$40.760, none

#19 3670.0 psi, 3830.0 psi, 4090 psi #20 266.0 min, 266.0 min, 260 min

#21 (a) The mean is greater than the median .(b) roughly equal (c) The mean is smaller.

#22 (a) IV (b) III (c) II (d) I