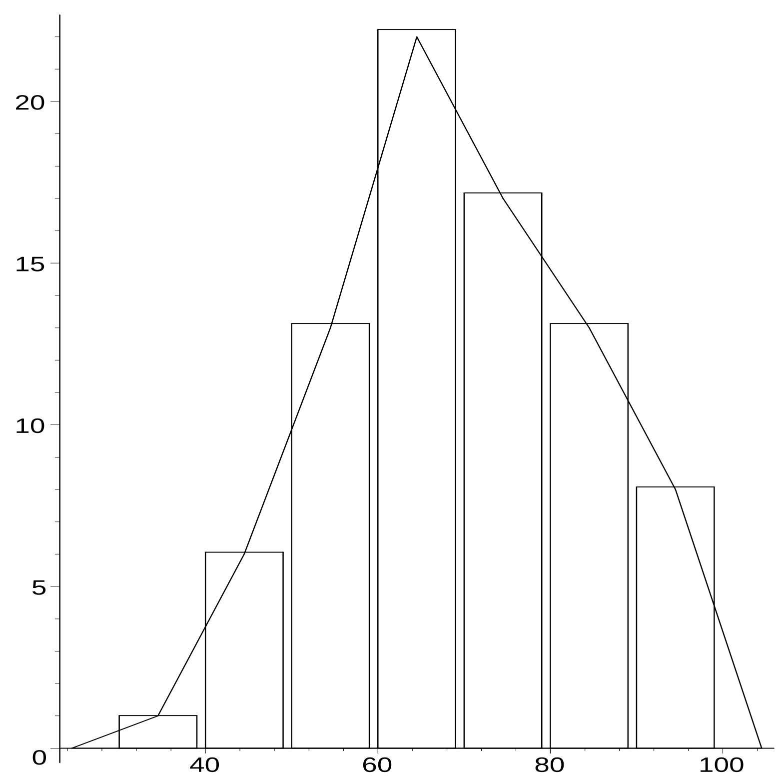
9.1 2 (a,b)[6 pts] We'll make a table of intervals and frequencies:

Interval	**Frequency**
30-39	1
40-49	6
50-59	13
60-69	22
70-79	17
80-89	13
90-99	8

(c,d)[6 pts] Using this, we can make a histogram. The frequency polygon is drawn on top of it:



9.1 12 [4 pts] $\Sigma x = 30.1 + 42.8 + 91.6 + 51.2 + 88.3 + 21.9 + 43.7 + 51.2 = 420.8$, $n = 8$, and the mean is $\bar{x} = \Sigma x / n = 420.8/8 = 52.6$.

9.1 18 [4 pts] Written from smallest to largest, the numbers are:
1005, 1009, 1042, 1056, 1068, 1072, 1093
The median is the middle number, 1056.

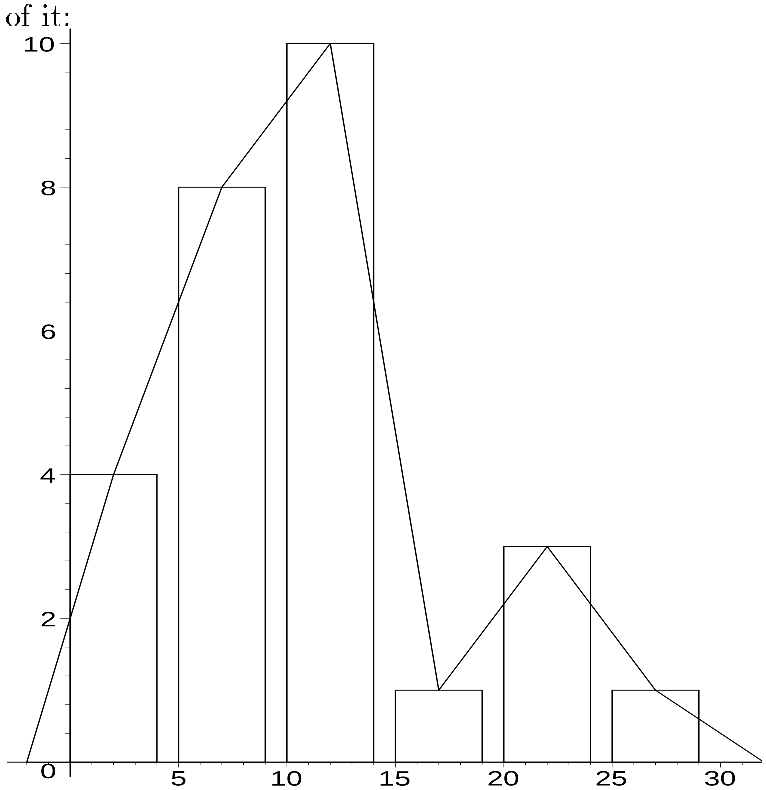
9.1 40 [12 pts] To compute the mean, we find that the sum is $\Sigma x = 16 + 12 + 11 + 9 + 8 + 7 + 7 + 6 + 5 + 5 + 4 + 4 + 2 = 96$, and there are 13 animals, so the mean is $\bar{x} = \Sigma x/n$ =96/13 which is about 7.38.
Since the values are already in order, to find the median, we need to middle one. That value is 7, so the median number of blood types is 7.
The greatest number of times that any value occurs is two, so the modes are all of the numbers that appear twice. Hence, the modes are 7,5, and 4.

9.1 44

(a)[4 pts] We'll make a table of intervals and frequencies:

Interval	**Frequency**
0-4	4
5-9	8
10-14	10
15-19	1
20-24	3
25-29	1

(b)[4 pts] Using this, we can make a histogram. The frequency polygon is drawn on top of it:



(c)[4 pts] For the original data, $\Sigma x = 285$, $n = 27$, and the mean is $\bar{x} = \Sigma x/n = 285/27$ which is about 10.56.

(d)[4 pts] Now we can make a table.

Interval	**Midpoint, x**	**Frequency, f**	**Product, xf**
0-4	2	4	8
5-9	7	8	56
10-14	12	10	120
15-19	17	1	17
20-24	22	3	66
25-29	27	1	27
Totals:		27	294

The mean of the grouped data is $\bar{x} = \Sigma xf/n = 294/27$ which is about 10.89

(e) [4 pts] Part d was an approximation of the original data, so the value that we got for it is slightly different from the value in part c.

(f) [4 pts] If we write out the data in increasing order, we get:
0, 3, 4, 4, 5, 5, 6, 7, 7, 8, 8, 8, 10, 11, 11, 11, 11, 11, 12, 12, 14, 14, 16, 20, 21, 21, 25
As there are 27 items, the middle one (ie the 14th one) is 11, so the median is 11. Here, the one with the largest frequency is also 11, so the mode is 11.

9.2 6 [10 pts] The smallest number is 51 and the largest is 93, so the range is 93-51 = 42. If any of you have read the "Hitchhikers Guide to the Galaxy" books, you will find that this is the exact number which was refered to. Explains a lot, doesn't it?

The mean is $\bar{x} = \Sigma x/n = 700/10 = 70$.

Now we add up the x^2 to get 50,368. Plugging this into our formula, we get that the standard deviation is $s = \sqrt{(\Sigma x^2 - n\bar{x}^2)/(n-1)} = \sqrt{(50,368 - 10(70)^2)/9} = \sqrt{152}$ which is approximately equal to 12.3.

9.2 10 [10 pts] First, we make a huge table:

Interval	**Midpoint, x**	**Frequency, f**	**Product, xf**	x^2	fx^2
30-39	1	34.5	1190.25	1,190.25	
40-49	6	44.5	267.0	1180.25	11,881.50
50-59	13	54.5	708.5	2970.25	38,613.25
60-69	22	64.5	1419.0	4160.24	91,525.50
70-79	17	74.5	1266.5	5550.25	94,354.25
80-89	13	84.5	1098.5	7140.25	92,823.25
90-99	8	94.5	756.0	8930.25	71,442.00
Totals:	80		555.0		401,803.00

The mean is $\bar{x} = \Sigma xf/n = 5550/80 = 69.375$.

The standard deviation is $s = \sqrt{(\Sigma f x^2 - n\bar{x}^2)/(n-1)} = \sqrt{(401,830 - 80(69.375)^2)/79} = \sqrt{16,811.75/79}$ which is approximately 14.6.

9.2 26 (a)[4 pts] The mean is $\bar{x} = \Sigma x/n$=76.35/10 = 7.635 The year where unemployment was closest to the mean was 1995 when it was 7.40

(b)[4 pts] The standard deviation is $s = \sqrt{(\Sigma x^2 - n\bar{x}^2)/(n-1)}$ =$\sqrt{(594.27 - 10(7.635)^2)/(9)}$ which is approximately 1.122.

(c)[4 pts] To be within 1 standard deviation, it needs to be between 7.635 - 1.122 = 6.513 and 7.635 + 1.122 = 8.757. 7 of the years are within 1 standard deviation.

(d)[4 pts] To be within 3 standard deviations, it needs to be between 7.635 - 3*1.122 = 4.269 and 7.635 + 3*1.122 = 11.001. All 10 of the years are within 3 standard deviations.

9.2 28 (a) [4 pts] The variance is $s^2 = (\Sigma f x^2 - n\bar{x}^2)/(n-1)$ =14.76 The standard deviation is $s = \sqrt{s^2}$ =3.84.

(b)[4 pts] We found earlier that the mean was 7.38. To be within 1 standard deviation, it needs to be between 7.38 -3.84 = 3.54 and 7.38 -3.84 =11.22. 10 of the animals are within 1 standard deviation of the mean.