Math Q114

Finding the mean from a range of data:

The table below gives the ages of a class of 16 students grouped in intervals.

1. Do you know the actual ages of each of the 16 students?
2. Can you find the mean age for the class?
3. Can you estimate the mean age for the class?
4. Can you find the median age?

Age Interval	Frequency
15-19	9
20-24	4
25-29	2
30-34	1
total	16

Solutions:
Because you need the actual ages of students to find the precise mean, the best we can do is estimate. The 9 students with ages between 15 and 19 years of age could all be 15, or all be 19 or be any combinations of ages between the two numbers. Choosing the middle of the range of their ages is the best estimate; that is, we "pretend" that they are all 17 years of age and so add up 9 people with age 17 or 9 x 17 =153. Now do the same for each other interval. Finally you must add up all the subtotals and divide by the total number of students (16)

Age Interval	Midpoint	Frequency	Subtotals
15-19	17	9	9(17)=153
20-24	22	4	4(22)=88
25-29	27	2	2(27)=54
30-34	32	1	1(32)=32
total		16	327

The best estimate of the mean is based on midpoints of each intervals:
Mean = 327/16 = 20.4375 or 24.4 years