Summative Statistics Exercise

Name_____

The following data shows the lengths of 30 trout caught in a lake during a fishing competition. The measurements were rounded down to the nearest centimetre.

31	38	34	40	24	33	30	36	38	32	35	32	36	27	35
40	34	37	44	38	36	34	31	38	35	36	33	33	28	33

a. Construct a cumulative frequency table for trout lengths, x cm, using the intervals $24 \le x < 27$, $27 \le x < 30$, and so on. Why does a grouped cumulative frequency table make more sense than a frequency table?

b. Draw a cumulative frequency graph for the data on the grid provided below.

c. Hence, estimate the median length. Explain how you got your answer.

d. Use the cumulative frequency table to calculate an estimate for the mean. Show the work that leads to your answer.

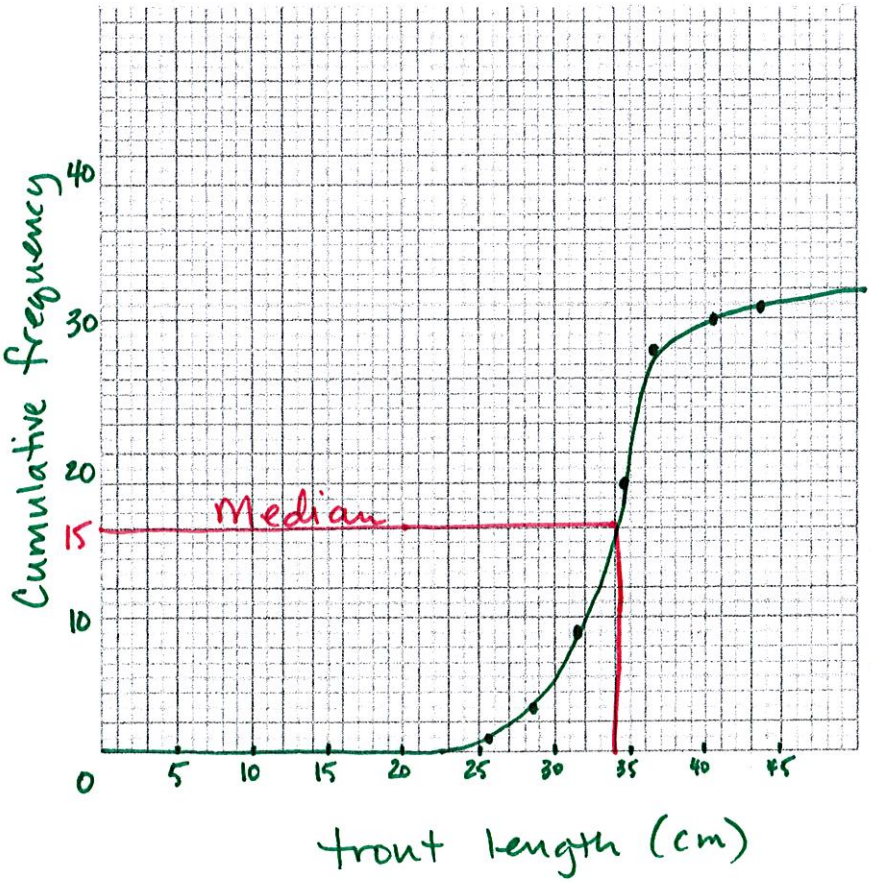
e. Use the original data to find its mean, median, mode, standard deviation, variance, range, and IQR. Compare your answers from part *c* & *d*. Comment on your results.

f. Compare the mean and median in part *e* and comment on the distribution of your data.

g. Construct a boxplot for the original set of data.

c. median = 34 cm

e. mean = 34.4 cm
median = 34.5 cm
mode = 33 & 36 cm
SD = 4.05
variance = $(4.05)^2$
range = 20
IQR = 5



Summative Statistics Exercise

a.

Number of trout	frequency	Cumulative freq.
$24 \leq x < 27$	1	1
$27 \leq x < 30$	2	3
$30 \leq x < 33$	5	8
$33 \leq x < 36$	10	18
$36 \leq x < 39$	9	27
$39 \leq x < 42$	2	29
$42 \leq x \leq 45$	1	30

d. $$\frac{25.5(1) + 28.5(2) + 31.5(5) + 34.5(10) + 37.5(9) + 40.5(2) + 43.5(1)}{30}$$

$$\text{mean} \approx \frac{1047}{30} = 34.9 \text{ cm}$$

(or enter mid-interval values & freq in calculator)

f. Since the mean almost equals the median, the data is fairly symmetrically distributed.

g.