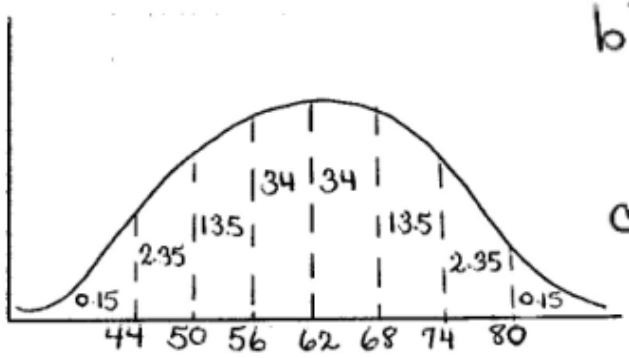
NORMAL DISTRIBUTION WORKSHEET

↳ ANSWERS

1.

a)



b) 56% → 68% = 34 + 34
= 68%

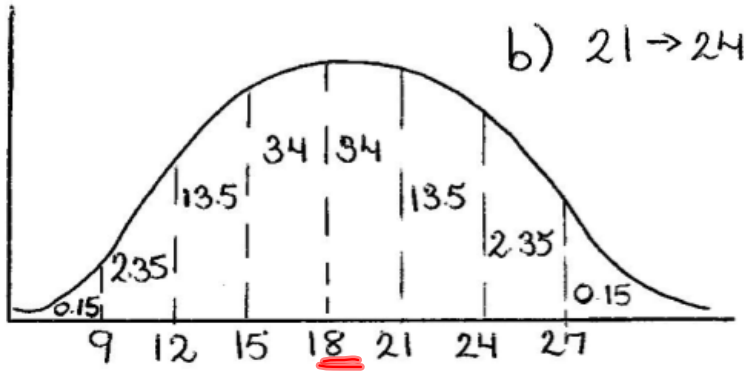
c) 68% → 74% = 13.5%

d) over 50% = 13.5 + 34 + 34 + 13.5 + 2.35 + 0.15
= 97.5%

e) 56% → 68% = 68%
↳ 0.68 × 2800
= 1904

f) over 50% = 97.5%
↳ 0.975 × 2800
= 2730

2. a)



b) 21 → 24 hours = 13.5%

c) 68% of the batteries lasted within one standard deviation of the mean

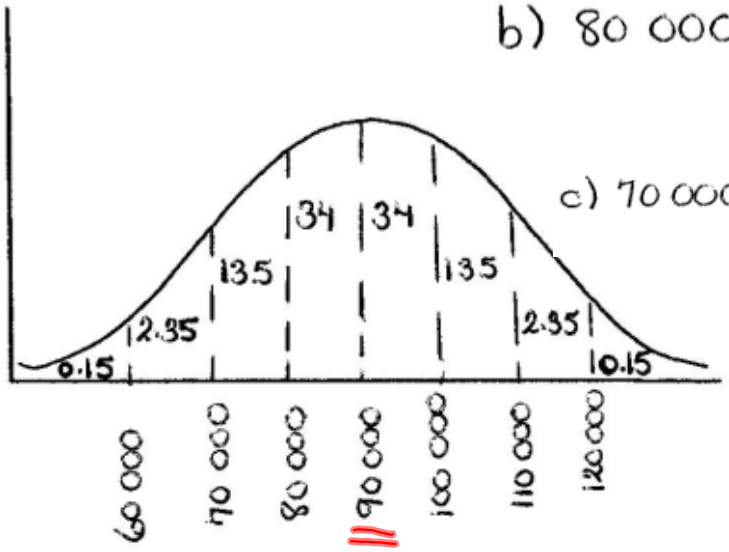
↳ 0.68 x 10000 = 6800 batteries

d) 12 → 18 hours = 13.5 + 34
= 47.5%

0.475 x 10000
= 4750 batteries

3.

a)



b) 80 000 ⇝ 110 000 =34+34+13.5
=81.5%

c) 70 000 ⇝ 100 000 = 13.5+34+34
= 81.5%

0.815 X 67 000
= 54 605 Tires

d) over 70 000 = 13.5+34+34+13.5 +2.35+0.15
= 97.5 %

0.975 X 67000
= 65 325 Tires

4 a) Largest Population Mean
↳ NORMAL CURVE 3 - the data are centered around the mean, which is 8 for curve 3.

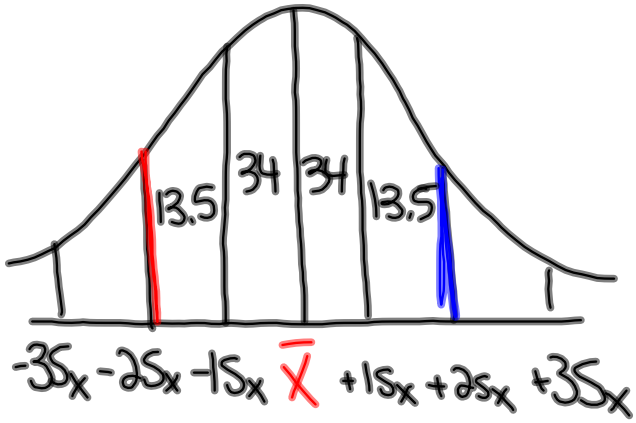
b) Largest Population Standard Deviation
↳ NORMAL CURVE 1 - it seems to extend over a larger range than the other curves.

c) Smallest Population Standard Deviation
↳ NORMAL CURVE 2 - it seems to be clustered over a smaller range than the other curves.

d) Smallest Population Mean
↳ NORMAL CURVE 1 - the data are centered around the mean, which is 4 for curve 1.

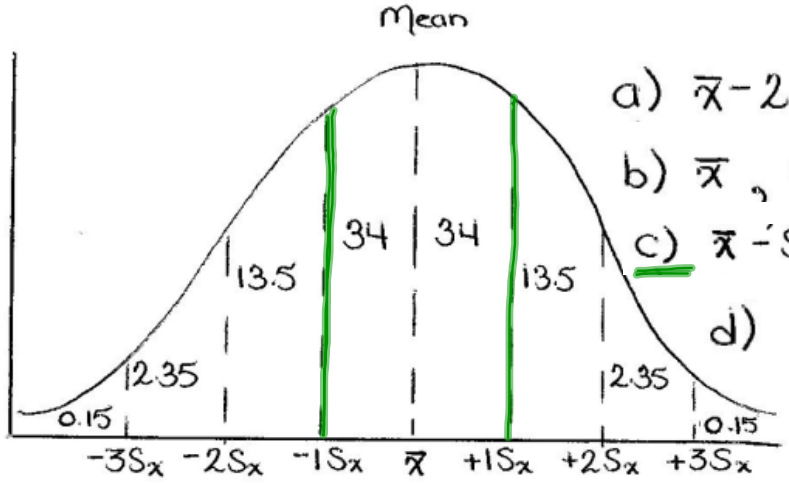
5. Histogram 2 most closely resembles a normal distribution since it most closely resembles a bell-shaped curve.

Sample



⑤ a) $\bar{x} - 2s_x$, $\bar{x} + 2s_x$ = 95%

6.



a) $\bar{x} - 2S_x$, $\bar{x} + 2S_x \rightarrow 95\%$

b) $\bar{x}$, $\bar{x} + 2S_x \rightsquigarrow 47.5\%$

c) $\bar{x} - S_x$, $\bar{x} + S_x \rightsquigarrow 68\%$

d) $\bar{x} - S_x$, $\bar{x} \rightsquigarrow 34\%$

e) $\bar{x} - S_x$, $\bar{x} + 2S_x \rightsquigarrow 81.5\%$

f) $\bar{x}$, $\bar{x} + 3S_x \rightsquigarrow 49.85\%$

g) $\bar{x} - 3S_x$, $\bar{x} \rightsquigarrow 49.85\%$

h) $\bar{x} - S_x$, $\bar{x} + 3S_x \rightsquigarrow 83.85\%$

i) $\bar{x} + S_x$, $\bar{x} + 2S_x \rightsquigarrow 13.5\%$

j) $\bar{x} - 3S_x$, $\bar{x} - 2S_x \rightsquigarrow 2.35\%$