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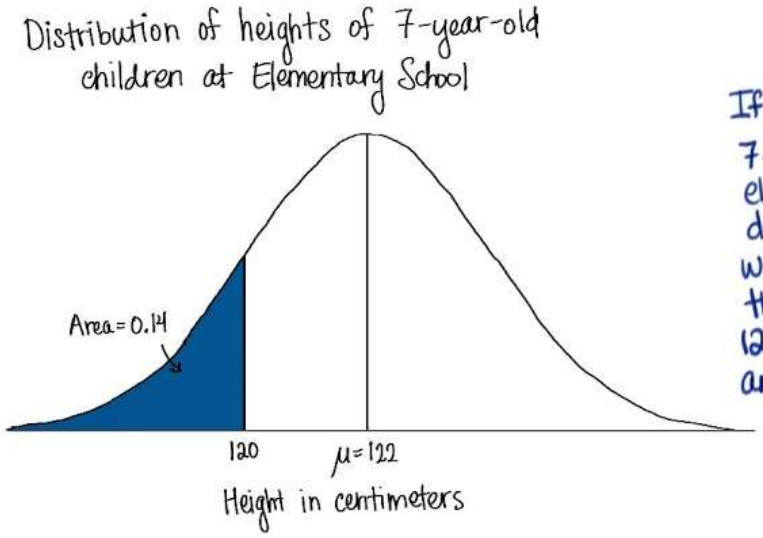
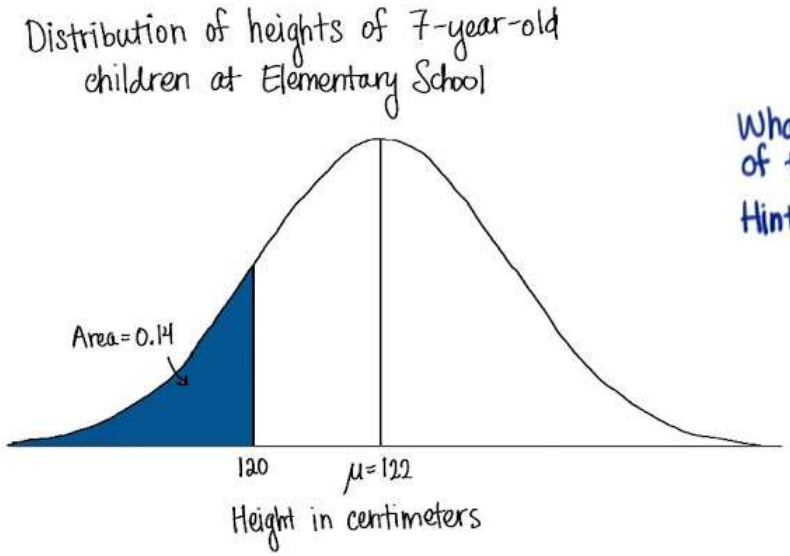
Problem Set – Lesson 6

Q1



If you randomly select a 7-year-old child from the elementary school population described by this distribution, what's the probability that the child will be less than 120 cm tall? Write your answer as a proportion.

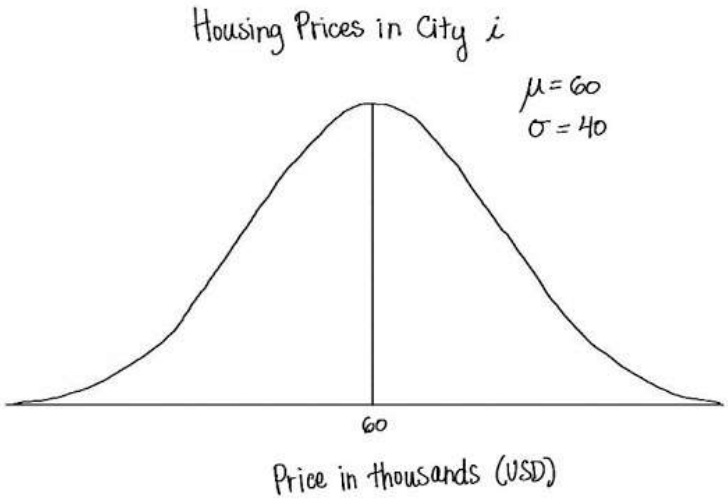
Q2



What is the standard deviation of this distribution?

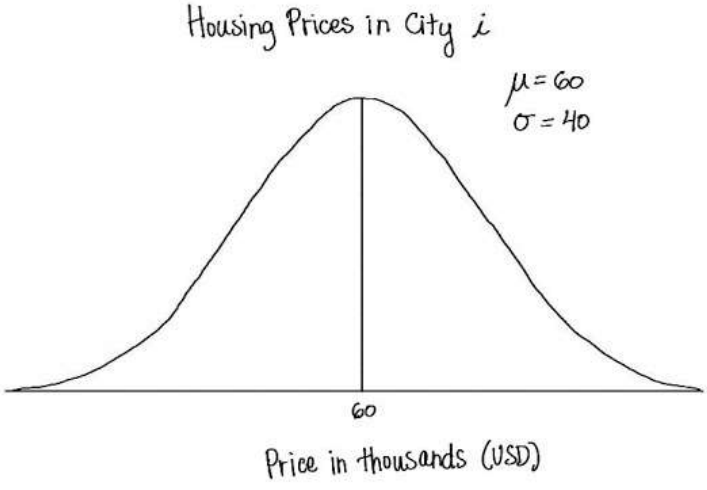
Hint: Use the z-table.

Q3:-



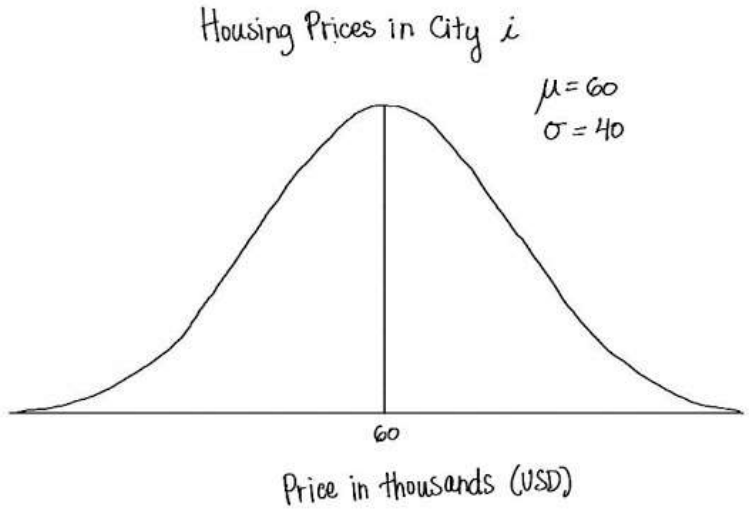
What proportion of houses are less than $50,000?

Q4:-



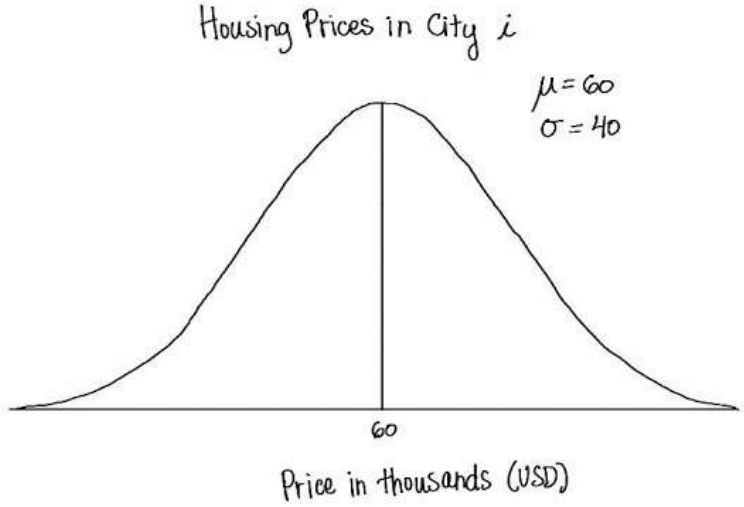
What proportion of houses are between $60,000 and $80,000 ?

Q5:-



The top 5% most expensive houses cost at least $[ ].

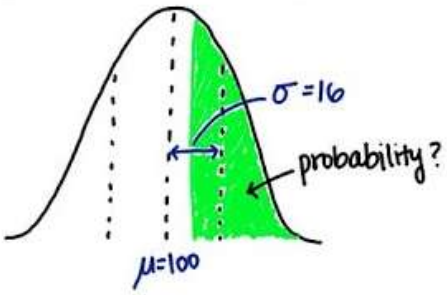
Q6:-



If the population described by this distribution includes 120,500 houses, how many houses cost at least $100,000?

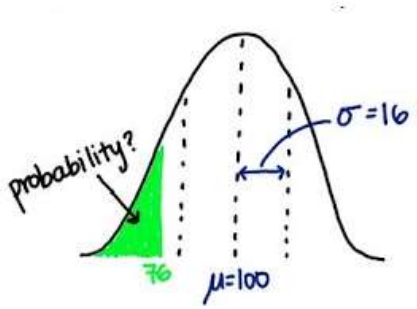
Q7:-

For a normal distribution with $\mu = 100$ and $\sigma = 16$, what is the probability of randomly selecting a score greater than 108? Write your answer as a proportion and round to 2 decimal places.

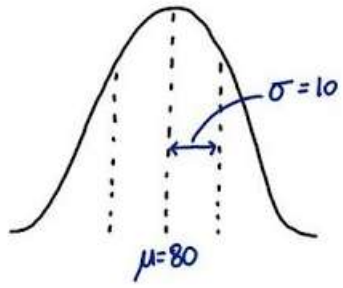


Q8:-

For a normal distribution with $\mu = 100$ and $\sigma = 16$, what is the probability of randomly selecting a score smaller than 76? Write your answer as a proportion and round to 2 decimal places.

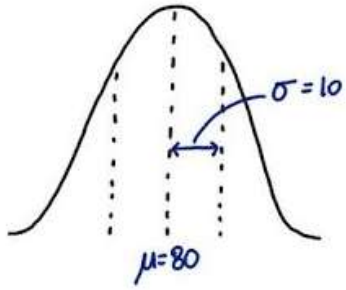


Q9:-



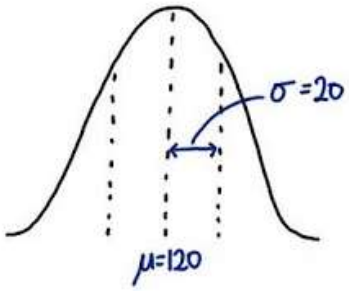
A population is normally distributed with mean 80 and standard deviation 10. What is the probability of randomly selecting a score between 65 and 90?

Q10:-



A population is normally distributed with mean 80 and standard deviation 10. What is the probability of randomly selecting a score between 80 and 95?

Q11:-



A population is normally distributed with mean 120 and standard deviation 20. What score marks the cut-off for the top 30% ?

Q12:-

What is the probability of randomly selecting a z-score greater than z = +1.64 from a standard normal distribution?

- 0.9495
- 0.4495
- 0.0987
- 0.0505

Q13:-

What is the probability of randomly selecting a z-score less than z = -2.33 from a standard normal distribution?

- 0.0099
- 0.9901
- 0.0987
- 0.4901

Q14:-

What z-score marks the cutoff for the top 40%?

Q15:-

If 33% of scores in a population are below Score X, this means that (check all that apply):

- Score X has a z-score of -0.44
- Score X is greater than μ.
- Score X is less than 1 standard deviation from μ.
- The percentile of Score X is 33%.

Q16:-

A normal distribution has mean 90 and standard deviation 10. What score in this distribution represents the 64th percentile?