

Section 7

Practice Problems

A: Finding Area under SNPD: Be sure to **shade the proper region**. Use the table and find the area that corresponds to the given probability.

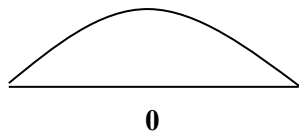
1	$P(-1.75 < Z) =$	2	$P(Z < 1.08) =$	3	$P(.5 < Z < 1.5) =$	4	$P(-2.11 < Z < 1.55) =$
5	$P(-1.8 < Z < 2.08) =$	6	$P(1.57 > Z) =$	7	$P(-1.17 < Z < 1.34) =$	8	$P(-2.0 < Z < -.5) =$
9	$P(3.884 < Z) =$	10	$P(Z > -1.4) =$	11	$P(-1.8 < Z < -.8) =$	12	$P(1.2 < Z < 1.6) =$

Answers on page 3

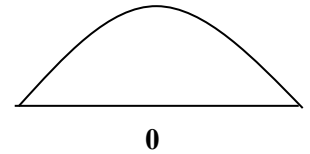
B. If the average life of “Die Easy” batteries is 60 months with st. dev. of 10 months. Assuming that data are normally distributed then what percentage of batteries last

- | | |
|-----------------------------|---------------------------------|
| 1. Between 46 and 48 months | 2. Between 55 and 65 months |
| 3. Between 66 and 75 months | 4. Less than 54 months |
| 5. More than 52 months | 6. Less than 68 months |
| 7. More than 85 months | 8. Within 10 months of the mean |
- 9 Find the time that separates the top 20% of batteries that last longer than the rest.
 10. Find the time that separates the bottom 5% of batteries that last less than the rest.

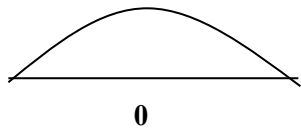
1.



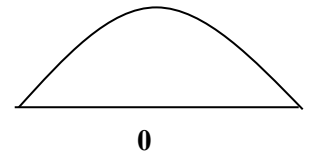
2.



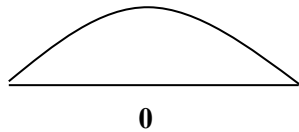
3.



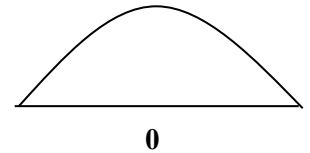
4.



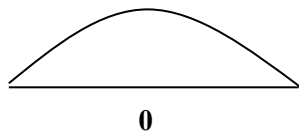
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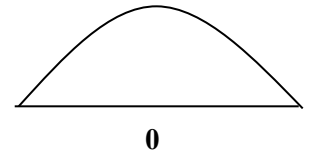
6.



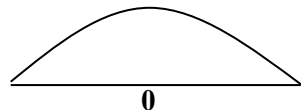
7.



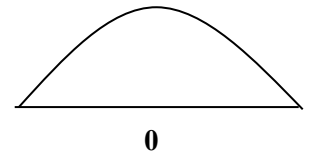
8.



9.



10.

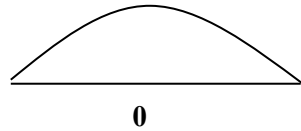


Answers on page 3

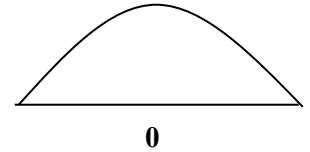
C. If the average price for textbooks in a college university is \$75 with st. dev. of 20. Assuming that data are normally distributed then what percentage of college books is,

1. Between 60 and 80 dollars
2. Between 65 and 67 dollars
3. Between 80 and 110 dollars
4. Less than 70 dollars
5. More than 50 dollars
6. Less than 90 dollars
7. More than 100 dollars
8. Within 25 dollars of the mean
9. Find the dollar value that separates the top most 8% of expensive of textbooks.
10. Find the dollar value that separates the lowest 25% inexpensive of textbooks.

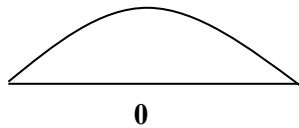
1.



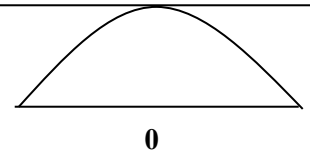
2.



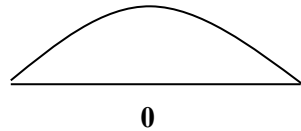
3.



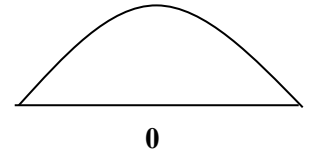
4.



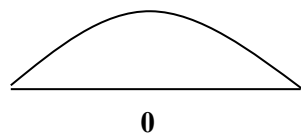
5.



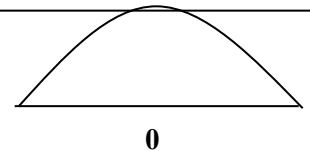
6.



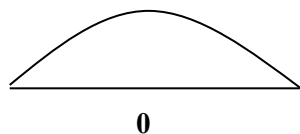
7.



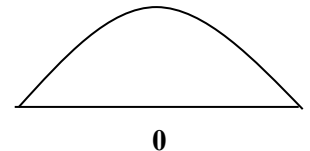
8.



9.



10.

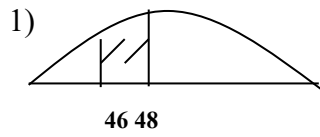


Answers

A

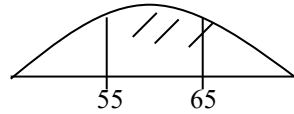
1	.9599	2	.8599	3	.2417	4	.9220
5	.9453	6	.9418	7	.7889	8	.2857
9	.0001	10	.9192	11	.1760	12	.0603

B)

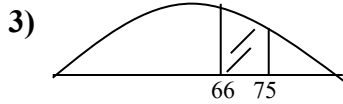


$normalcdf(46, 48, 60, 10) \rightarrow enter = .0343 = 3.43\%$

2)

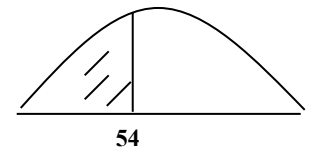


$normalcdf(55, 65, 60, 10) \rightarrow enter = .383 = 38.30\%$



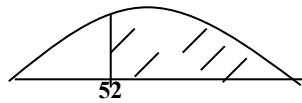
$normalcdf(66, 75, 60, 10) \rightarrow enter = .2075 = 20.75\%$

4)



$normalcdf(0, 54, 60, 10) \rightarrow enter = .2743 = 27.43\%$

5)

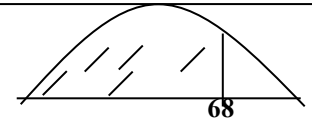


Need to create an upper boundary

$UB = \mu + 5\sigma = 60 + 5(10) = 110$

$normalcdf(52, 110, 60, 10) \rightarrow enter = .788 = 78.8\%$

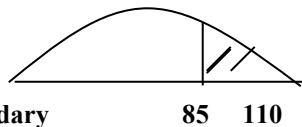
6)



The logical lower boundary will be zero

$normalcdf(0, 68, 60, 10) \rightarrow enter = .788 = 78.8\%$

7)



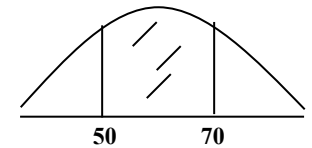
Need to create an upper boundary

$UB = \mu + 5\sigma = 60 + 5(10) = 110$

$normalcdf(85, 110, 60, 10) \rightarrow enter = .006 = 0.06\%$

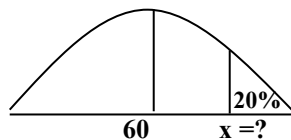
8)

within 10 means 10 more or 10 less



$normalcdf(50, 70, 60, 10) \rightarrow enter = .683 = 68.3\%$

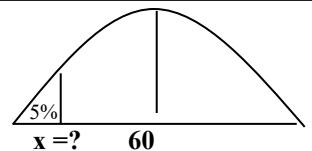
9)



To do it in I for top 20%, you need to use 80% from bottom

$invNorm(0.8, 60, 10) \rightarrow enter \text{ answer: } x = 68.416$

10)



$invNorm(0.05, 60, 10) \rightarrow enter \text{ answer: } x = 43.551$

Problem	1	2	3	4	5	6	7	8	9	10
C	3.43 %	38.30	20.75	27.43	78.81	78.81	0.62	68.26	X = 68.40	X = 43.55