No. Chapter 6 A

1 Given a standard normal distribution, find the area under the curve which lies:

a) to the left of z = 0.5

b) to the right of z = -1

c) between z = -1 and -0.5

d) to the left of z = -1.96

e) to the right of z = 1.96

f) between z = 0 and 1.47

2 Given the standard normal distribution, find the value of k such that:

a) $P(Z < k) = 0.0200$

b) $P(Z > k) = 0.2000$

c) $P(0.1 < Z < k) = 0.2500$

3 Given the normal distribution and: $\mu = 20$ $\sigma = 1.5$

a) Find P(X < 17):

b) the value of k such that P(X < k) = 25%

c) the value of k such that P(X > k) = 23%

d) P(19 < X < 22.5) =

4 Mice live average of 28 months on diet with a standard deviation of 4 months:

a) $P(X > 33)$:

b) $P(X < 30)$:

c) $P(33< X < 41)$ =

5 Drinks have following statistics: $\mu = 100$ $\sigma = 8$

a) What fraction of drinks have a volume greater than 114 ?

b) $P(80 < X < 100) =$

c) $P(X>115)$ for 1000 drinks?

d) How many drinks is that out of 1000 for part C?

6 The average life of motor is 12 years with standard deviation is 3 years. Assuming a normal distribution, how long until 6% fail?

7 A company pays avg of $16 with a std dev = $2

a) P(13 < X < 15) = Hint: must be to nearest penny.

b) What is 98% pay? Hint: must be to nearest penny.

8 Tensile strength of steel is normally distributed and: $\mu =$ 5000

$\sigma =$ 200

Cannot measure closer than (i.e., resolution): 60

Note that this is similar to binomial problems in that is a discrete variable that is approximated as normal.

a) Find Proportion > 5300:

b) Find the proportion NOT in the specification range ($4660 \le x \le 5250$) =

9 IQ is normally distributed and is an integer value. A college requires minimum IQ= 100. If the test resolution is 1 point, how many applicants will be rejected for a low IQ given that for applicants:

N = 600 $\mu = 110$ $\sigma = 15$

10 Coffee is distributed in continuous uniform distribution from A to B

A = 6 B = 15

Find probability that on a given day, the amount of coffee dispensed will be:

a) Less than 10 liters ?

b) P(7 < x < 9 liters)

c) > 8.5) 8.5

1

a)

b)

c)

d)

e)

f)

2

a)

b)

c) c) 0.806

3

a) 0.023

b) 19.0

c) 21.1

d) 70%

4

a) 10.6%

b) 69.1%

c) 10.6%

5 a) 4.0%

b) 0.0%

c) 3.0%

d) 30

6 7.34

7

a) 24%

b) 20.11

8

a) 4.9%

b) 0.113

9 145

10

a) 0.444

b) 22%

c) 72%

