JCC MT 1540 Name:_____

Chapter 7 Test Date: _____

For each problem, assume that the values of the variable are normally distributed. Some questions require the use of the Standard Normal Table. All complete and correct work must be shown.

1. Find the probability $P(z < .32)$

   A. 0.6255 B. 0.1255 C. 0.3745 D. 0.6800

2. Find the probability $P(0.26 < z < 1.33)$

   A. 0.4600 B. 0.3057 C. 0.6943 D. 0.8057

3. Find the area under the standard normal distribution curve between $z= -0.87$ and $z = -0.21$

   A. 0.4168 B. 0.1922 C. 0.2246 D. 0.5832

4. Find the area under the standard normal distribution curve to the left of $z= -1.43$

   A. 0.0143 B. 0.9236 C. 0.9236 D. 0.0764

5. Find the area under the standard normal distribution curve to the right of $z = -0.18$

   A. 0.5714 B. -0.4286 C. 1.5714 D. 0.4286

6. Find the area under the standard normal distribution curve to the left of $z = -2.15$ and to the right of $z = 1.62$

   A. 0.0526 B. -0.0526 C. 0.0684 D. 0.0158

7. Find the z-score so that 96.86 % of the normal probability distribution lies to the left of it.

8. Find the z-score so that 53.98 % of the normal probability distribution lies to the right of it.

9. The average height of a flowering cherry tree in a nursery is 10.5 feet. I f the heights are normally distributed with a standard deviation of 1.5, find the probability that a tree is less than 12.5 feet tall.

A. 0.96 **B.** 0.73 **C.** 0.91 **D**. 0.82

The average life of a brand of automobile tires is 30,000 miles with a standard deviation of 2000 miles. If a tire is randomly selected and tested, find the probability that is will have the following lifetime.

10. Between 24,000 mile and 28,000 miles

11. Between 27,000 miles and 33,000 miles

12. more than 24,000 miles

The average amount of snowfall per season in Trafford is 44 inches. The standard deviation for snowfall is 6 inches. Find the probability that next year Trafford will receive…

13. at most 53 inches of snow.

14. at least 50 inches of snow.

15. In order to qualify for police academy training, recruits are tested for stress tolerance. The mean test score is 60 with a standard deviation of 10. If only the top 15% of recruits are selected, find the cutoff score.

For questions 21 & 22, use the normal approximation to the binomial to find the probabilities for the value(s) of x below.

16. $n = 40, p = 0.5, x = 18$

17. $n = 20, p = 0.6, x \leq 12$

For questions 23 & 24, use the normal approximation to the binomial to find the probabilities as stated below.

18. Of all 3 to 5 year old children, 56% are enrolled in school. If a sample of 500 such children is randomly selected, find the probability that at least 250 will be enrolled in school.

19. An airline company has found that 5% of its passengers do not show up for their scheduled flights. If the plane has 100 seats, find the probability that 6 or more people will not show up for the fully booked flight.