Stats* - Mr. Alden - The Haverford School
Chapter 5 Pop Quiz Name: _____

20 minutes, 20 problems, 5 points each, 100 points total.
Closed book/notes/tablet/laptop; calculator okay but not needed.

Indicate whether each statement is (T)rue or (F)alse.

1. T F For any continuous random variable, the area under its probability density function (pdf) curve is equal to 1.00.

2. T F All normal pdf curves are symmetric and "bell-shaped."

3. T F As the standard deviation of a normal distribution gets smaller, the curve becomes lower and wider.

4. T F For a standard normal distribution, $P(X < 2) \approx .84$.

5. T F The Empirical Rule is applicable only to the standard normal distribution.

6. T F If a random variable X is uniformly distributed on the real interval [7, 34], then $P(15 < X < 16) \approx .03704$.

7. T F By the Empirical Rule, about 99.7% of the area under a normal curve is within 1 standard deviation of the mean.

8. T F If X is uniformly distributed on the interval [8,37], then its pdf over that interval is f(x) = .1287.

9. T F The domain of a normal probability density function (pdf) is $(-\infty, \infty)$ and its range is $(0, 1)$.

10. T F The standard normal curve is the only normal curve with a standard deviation of exactly 1.00.

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11. T F The total area under a normal probability density curve is inversely proportional to its maximum height (at the top of the "bell").

12. T F For a standard normal density function, $P(x > 1) \approx 0.84$.

13. T F The standard normal distribution has a mean of one and a standard deviation of zero.

14. T F For any continuous random variable X, $P(X = a) = 0$ for any single point a.

15. T F For a symmetrical continuous probability distribution, the mean and median are the same.

16. T F The domain of a normal cumulative density function (cdf) is $(-\infty, \infty)$ and its range is $(0, \frac{1}{\sqrt{2\pi}\sigma})$.

17. T F The inverse normal function permits you (when you're working with a normally distributed random variable) to find a data point, given a probability.

18. T F If a random variable is normally distributed with mean μ and standard deviation σ (where μ and σ are constants), then the linear transformation $Y = \frac{X-\mu}{\sigma}$ is distributed in accordance with the standard normal distribution.

19. T F If a, b, c, d are real numbers where $a < b < c < d$, and X is a continuous random variable that is uniformly distributed on $[a, d]$, then $P(b < X < c) = \frac{(c-b)}{(d-a)}$.

20. T F All bell-shaped, symmetric probability curves are normal.