

Math 153 - Quiz 9

November 2, 2017

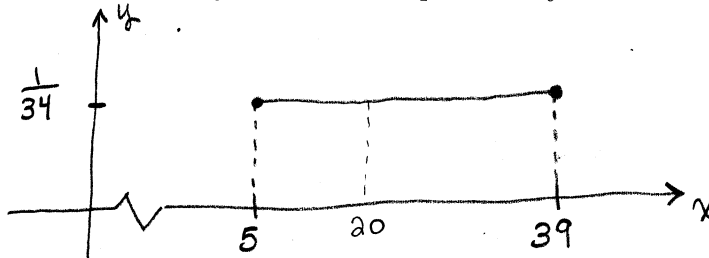
Name key

Score _____

Show all work to receive full credit. Supply explanations when necessary.

1. (5 points) In a certain large group of adults, the weekly amounts of time spent watching television are uniformly distributed between 5 hours and 39 hours.

(a) Sketch the density curve for the probability distribution.



(b) What is the probability that a random person from this group watches television more than 20 hours per week?

$$P(x > 20) = \frac{1}{34} (39 - 20) = \frac{19}{34} \approx 55.9\%$$

(c) What is the probability that a random person from this group watches television exactly 20 hours per week?

$$P(x = 20) = 0$$

2. (5 points) Carapace lengths of adult male Brazilian tawny red tarantulas are normally distributed with mean 18.14 mm and standard deviation 1.76 mm.

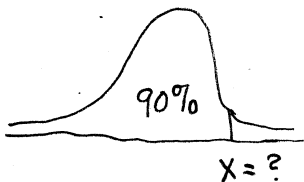
(a) What percent of these tarantulas have carapaces between 17 mm and 19 mm?

$$P(17 < x < 19) = \text{normalcdf}(17, 19, 18.14, 1.76) \approx 0.4289$$

(b) What is the probability that a random tarantula will have a carapace longer than 20 mm?

$$P(x > 20) = \text{normalcdf}(20, 999999, 18.14, 1.76) \approx 0.1453$$

(c) What carapace length is at the 90th percentile?



$$\text{invNorm}(0.90, 18.14, 1.76) \approx 20.40 \text{ mm}$$