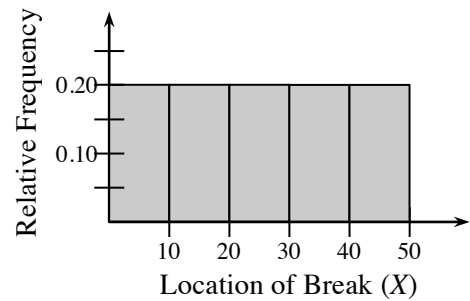
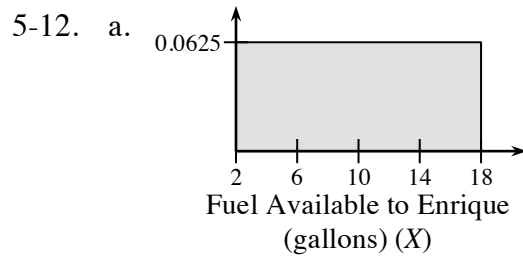
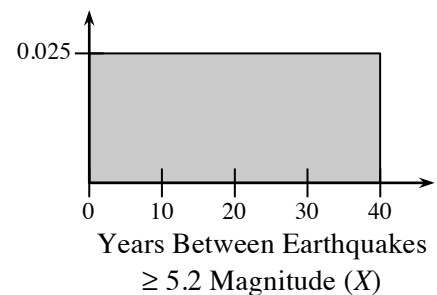


Lesson 5.1.2

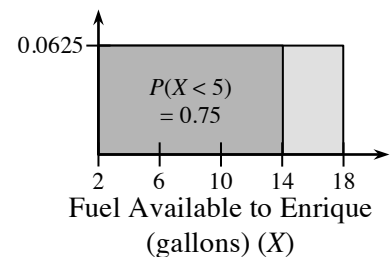
- 5-10. a. i. $P(0 < X < 25) = 0.50$
 ii. $P(0 < X < 50) = 1.00$
 iii. $P(0 < X < 10) = 0.20$
 iv. $P(37.5 < X < 50) = 0.25$
 v. $P(X = 17.531) \approx 0.00$
 b. See example above right.
 c. uniform and symmetric
 d. 25 cm



- 5-11. a. See diagram at right.
 b. $P(X < 15) = 0.375$
 c. $P(X < 32) = 0.80$
 d. $P(0 < X < 25) = 0.625$
 e. $P(X = 1) \approx 0.00$
 f. $X(0.025) = 0.30$; $P(X < 12) = 0.30$



- b. $\frac{9-2}{16} = P(X < 9) = 0.4375$
 c. $\frac{4.5-2}{16} = P(X < 4.5) = 0.1563$
 d. $P(X = 14) \approx 0$
 e. See diagram at right.
 $(X - 2)(0.0625) = 0.75$; $P(X < 14) = 0.75$
 f. $(X - 2)(0.0625) = 0.40$; $P(X < 8.4) = 0.40$

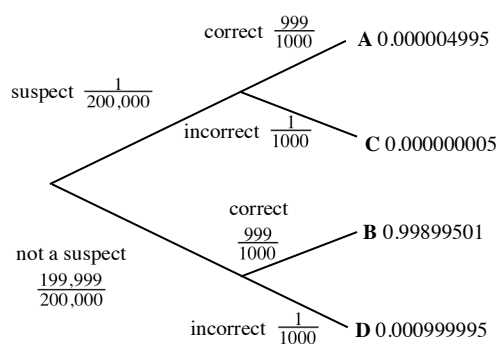


- 5-13. Answers will vary.

- 5-14. a. The five number summary is (1, 19.5, 29, 40.5, 76 cups of coffee per hour).
 b. The typical number of cups sold in an hour is 29 as determined by the median. Looking at the shape of the distribution, students see that the median is a satisfactory representation of the distribution. The distribution has a skew. There is a gap between 60 and 70 cups. The IQR is 21 cups. 76 cups of coffee in one hour is an apparent outlier.

- 5-15. a. See possible diagrams and answers below.
 In the table, Cell A is the proportion correctly identified as suspects. Cell B is the proportion correctly identified as not being suspects. Cell C is the proportion the software failed to identify but who actually are suspects. Cell D is the proportion the software identified as suspects who are not. In the tree diagram, the top branch corresponds to A, the middle branches to C and B (from top to bottom), and the bottom branch corresponds to D.

		Person	
		Suspect	Not Suspect
		$\frac{1}{200,000}$	$\frac{199,999}{200,000}$
Facial ID Software	Correct $\frac{999}{1000}$	A	B
	Incorrect $\frac{1}{1000}$	C	D



- b. $\frac{0.00099995}{0.00004995+0.00099995} \approx 99.5\%$
- 5-16. a. The experimental units are the children. The explanatory variable is reading to a dog or reading to a family member and the response variable is the change in scores on a test of reading fluency.
 b. Control: Reading to a dog is compared with a control group, reading to a family member. Randomization: here was no random assignment of children to a treatment. Replication: 33 children read to dogs and 27 children read to a family member.
 c. The amount of time a child spends reading has an impact on reading fluency. If a difference in reading fluency is noticed, it is impossible to tell if it is due to the treatment they received or the amount of time the child read.