symmetrical normal curve.
i. If every teacher received a \$3,000 raise, the distribution of X would shift to the right by \$3,000. In other words, it would have a mean of \$47,000.

77. a. X = the closing stock prices for U.S. semiconductor manufacturers
b. i. \$20.71; ii. \$17.31; iii. 35
c.
d. Exponential distribution, $X \sim Exp\left(\frac{1}{20.71}\right)$
e. Answers will vary.
f. i. \$20.71; ii. \$11.14
g. Answers will vary.
h. Answers will vary.
i. Answers will vary.
j. $N\left(20.71, \frac{17.31}{\sqrt{5}}\right)$

79. b

81. b

83. a

85. a. 0
b. 0.1123
c. 0.0162
d. 0.0003
e. 0.0268

87. a. Answers may vary.
b. $\overline{X} \sim N\left(60, \frac{9}{\sqrt{25}}\right)$
c. 0.5000
d. 59.06
e. 0.8536
f. 0.1333
g. $N(1500, 45)$
h. 1530.35
i. 0.6877

89. a. \$52,330
b. \$46,634

91. • We have μ = 17, σ = 0.8, $\bar{x}$ = 16.7, and n = 30. To calculate the probability, we use `normalcdf`(lower, upper, μ, $\frac{\sigma}{\sqrt{n}}$) = `normalcdf` $\left(E{-}99, 16.7, 17, \frac{0.8}{\sqrt{30}}\right)$ = 0.0200.
• If the process is working properly, then the probability that a sample of 30 batteries would have at most 16.7 lifetime hours is only 2%. Therefore, the class was justified to question the claim.

93. a. For the sample, we have n = 100, $\bar{x}$ = 0.862, s = 0.05
b. $\Sigma\bar{x}$ = 85.65, Σs = 5.18
c. `normalcdf`(396.9,E99,(465)(0.8565),(0.05)($\sqrt{465}$)) ≈ 1
d. Since the probability of a sample of size 465 having at least a mean sum of 396.9 is appproximately 1, we can conclude that Mars is correctly labeling their M&M packages.