

The weight of a certain type of pumpkin is normally distributed and typically is 36.7 pounds with a standard deviation of 3.5 pounds :

1. You randomly selected a pumpkin in the bottom 24% of all pumpkins of this type

What is the probability statement for this scenario? $P(X \leq B) = 0.2400$

What is the associated weight with this problem? $\text{mean} + \text{SD}(z) = 36.7 + 3.5(-0.71)$
 34.215

look up 0.2400
(0.2389)
 $\rightarrow -0.71$

Sketch the scenario on the provided normal curve



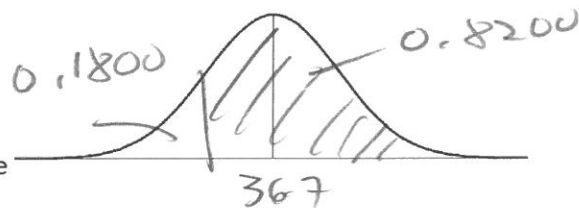
2. You randomly selected a plant in the top 82% of all pumpkins of this type

What is the probability statement for this scenario? $P(X \geq T) = 0.82$

What is the associated weight with this problem? $\text{mean} + \text{SD}(z) = 36.7 + 3.5(-0.92)$
 33.48

look up 0.1800
(0.1788)
 $-0.92 \leftarrow$

Sketch the scenario on the provided normal curve

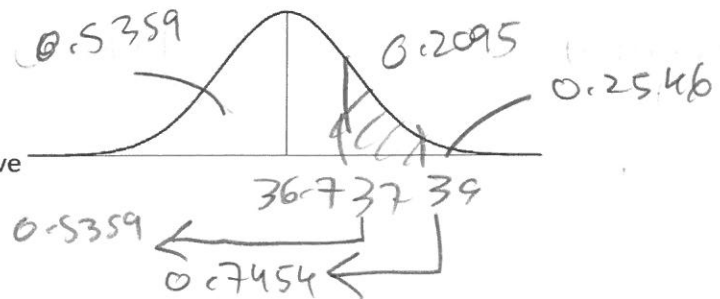


3. Determine the probability that you randomly select a pumpkin that weighs between 37 and 39 pounds

What is the probability statement for this scenario? $P(37 \leq X \leq 39) = 0.2095$

What is the associated range of weights with this problem? $37 \text{ to } 39$ or 2

Sketch the scenario on the provided normal curve



$$\frac{37 - 36.7}{3.5} = 0.09$$

$$\frac{39 - 36.7}{3.5} = 0.66$$

$$0.7454 - 0.5359 = 0.2095$$

The weight of a certain type of pumpkin is normally distributed and typically is 35.6 pounds with a standard deviation of 2.4 pounds :

1. You randomly selected a pumpkin in the bottom 12% of all pumpkins of this type

What is the probability statement for this scenario? $P(X \leq B) = 0.1200$

Mean + SD(Z) $35.6 + 2.4(-1.17) = 32.792$ $35.6 + 2.4(-1.175) = 32.78$
 $35.6 + 2.4(-1.18) = 32.768$

What is the associated weight with this problem? _____

0.1210
0.1190 → same distance

lookup 0.1200

so $z = -1.17, -1.18$ or -1.175

Sketch the scenario on the provided normal curve



2. You randomly selected a plant in the top 64% of all pumpkins of this type

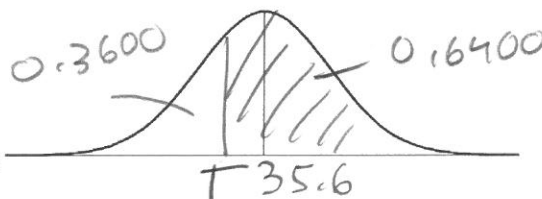
What is the probability statement for this scenario? $P(X \geq T) = 0.6400$

mean + SD(Z) $= 35.6 + 2.4(-0.36) = 34.736$

What is the associated weight with this problem? _____

lookup 0.3600
(0.3594) → -0.36

Sketch the scenario on the provided normal curve

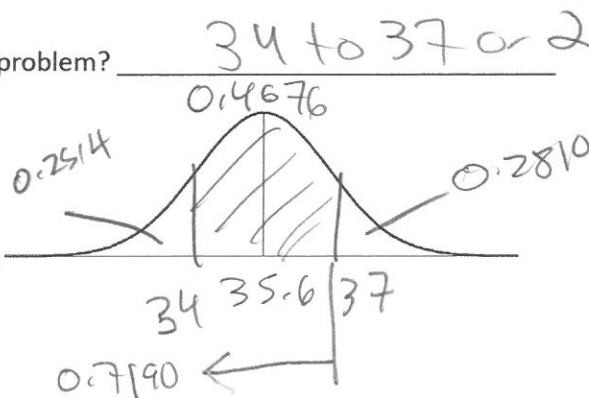


3. Determine the probability that you randomly select a pumpkin that weighs between 34 and 37 pounds

What is the probability statement for this scenario? $P(34 \leq X \leq 37) = 0.4676$

What is the associated range of weights with this problem? 34 to 37 or 2

Sketch the scenario on the provided normal curve



$\frac{34 - 35.6}{2.4} = -0.67$

$\frac{37 - 35.6}{2.4} = 0.58$

$0.7190 - 0.2514 = 0.4676$

$1 - (0.2514 + 0.2810) = 1 - 0.5324 = 0.4676$

The weight of a certain type of pumpkin is normally distributed and typically is 32.9 pounds with a standard deviation of 3.5 pounds :

1. You randomly selected a pumpkin in the bottom 18% of all pumpkins of this type

What is the probability statement for this scenario? $P(X \leq B) = 0.1800$

$$\text{mean} + SD(Z) = 32.9 + 3.5(-0.92) = 29.68$$

What is the associated weight with this problem? _____

look up 0.1800
(0.1788)
→ -0.92

Sketch the scenario on the provided normal curve



2. You randomly selected a plant in the top 76% of all pumpkins of this type

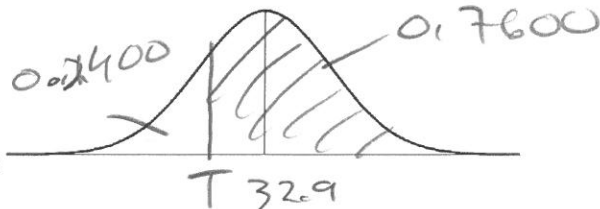
What is the probability statement for this scenario? $P(X \geq T) = 0.7600$

$$\text{mean} + SD(Z) = 32.9 + 3.5(-0.71) = 30.415$$

What is the associated weight with this problem? _____

look up 0.2400
(0.2389)
→ -0.71

Sketch the scenario on the provided normal curve

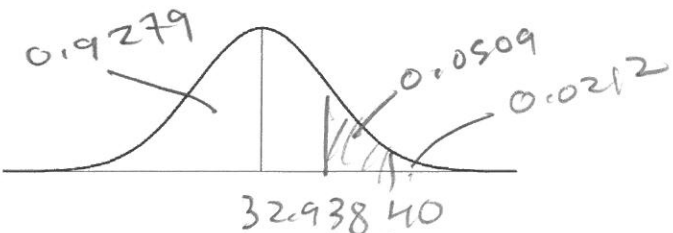


3. Determine the probability that you randomly select a pumpkin that weighs between 38 and 40 pounds

What is the probability statement for this scenario? $P(38 \leq X \leq 40) = 0.0509$

What is the associated range of weights with this problem? 38 to 40 or 2

Sketch the scenario on the provided normal curve



$$\frac{38 - 32.9}{3.5} = 1.46$$

$$\frac{40 - 32.9}{3.5} = 2.03$$

$$0.9788 - 0.9279 = 0.0509$$

4. The length of a float in the MACY's Thanksgiving Day parade normally distributed and typically is 5.2 meters with a standard deviation of 0.5 meters:

You are told to determine the maximum length that would make the following statement true:

Macy's has told us that 75% of all floats are between 4.8 meters and 6.085 meters

YOU MUST SHOW WORK TO RECEIVE CREDIT

$$\frac{4.8 - 5.2}{0.5} = -0.8 \quad \text{look up } 0.9619 \quad (0.9616) = 1.77$$

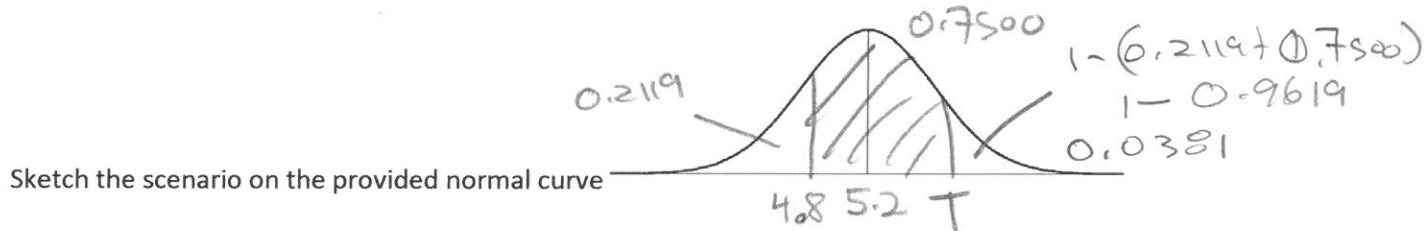
$$\text{or look up } 0.0381 \quad (0.0381) \text{ and change sign}$$

$$\rightarrow 1.77$$

What is the probability statement for this scenario? $P(4.8 \leq X \leq T) = 0.7500$

$$\text{mean} + SD(Z) = 5.2 + 0.5(1.77) = 6.085 \approx 6.09$$

What is the associated length with this problem? 6.085 (round to four decimal places)



5. The weight of a certain type of frozen turkey is said to be normally distributed and is typically 15.4 pounds with a standard deviation of 1.6 pounds

You are told to determine the minimum weight that would make the following statement true:

The Poultry Commission states that 25% of all turkeys are between 13.368 pounds and 14.8 pounds

YOU MUST SHOW WORK TO RECEIVE CREDIT

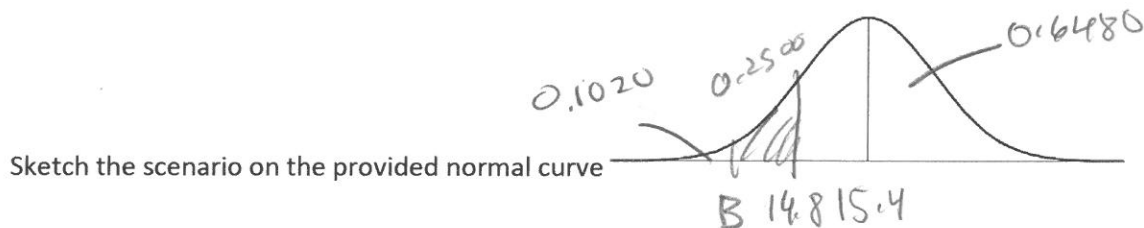
$$\frac{14.8 - 15.4}{1.6} = -0.38 \quad \text{look up } 0.1020 \quad (0.1020)$$

$$-1.27$$

What is the probability statement for this scenario? $P(B \leq X \leq 14.8) = 0.2500$

$$\text{mean} + SD(Z) = 15.4 + 1.6(-1.27)$$

What is the associated weight with this problem? 13.368 (round to four decimal places)



$$0.3520 - 0.2500 = 0.1020$$

$$0.3520 \leftarrow$$

$$1 - [0.2500 + 0.6480]$$

$$1 - 0.898 = 0.1020$$

4. The length of a float in the MACY's Thanksgiving Day parade normally distributed and typically is 6.2 meters with a standard deviation of 0.75 meters:

You are told to determine the maximum length that would make the following statement true:

Macy's has told us that 43% of all floats are between 5.6 meters and _____ meters

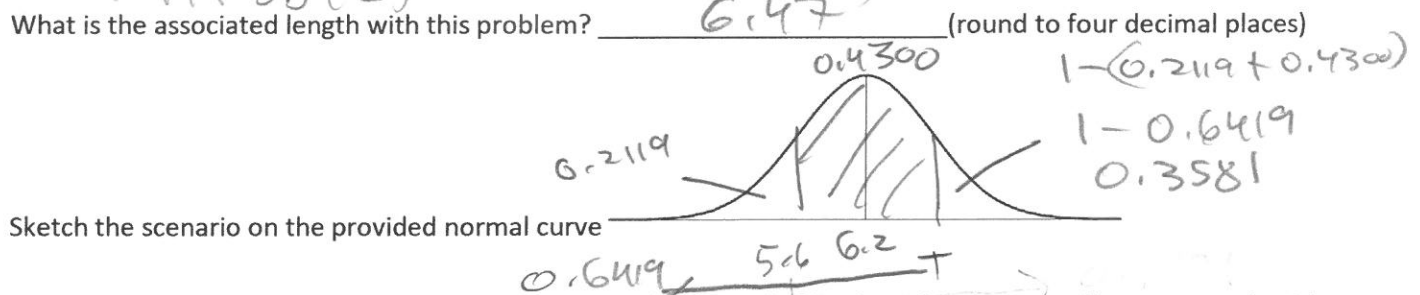
YOU MUST SHOW WORK TO RECEIVE CREDIT

$$\frac{5.6 - 6.2}{0.75} = -0.8$$

look up 0.6419 (0.6406) \rightarrow 0.36

What is the probability statement for this scenario? $P(5.6 \leq X \leq T) = 0.43$

mean + SD (Z) = $6.2 + 0.75(0.36)$
6.47 (round to four decimal places)



Sketch the scenario on the provided normal curve

5. The weight of a certain type of frozen turkey is said to be normally distributed and is typically 17.4 pounds with a standard deviation of 1.8 pounds

You are told to determine the minimum weight that would make the following statement true:

The Poultry Commission states that 35% of all turkeys are between _____ pounds and 16.9 pounds

YOU MUST SHOW WORK TO RECEIVE CREDIT

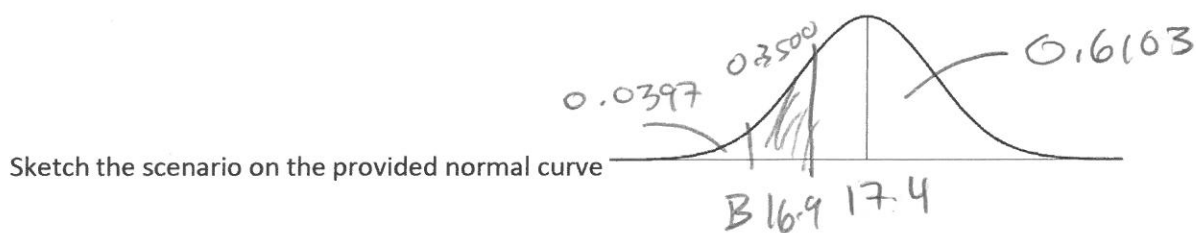
$$\frac{16.9 - 17.4}{1.8} = -0.28$$

look up 0.0397 (0.0401) \rightarrow -1.75

What is the probability statement for this scenario? $P(B \leq X \leq 17.4) = 0.3500$

$$\text{mean} + \text{SD}(Z) = 17.4 + 1.8(-1.75)$$

What is the associated weight with this problem? 14.25 (round to four decimal places)



Sketch the scenario on the provided normal curve

$$0.6103 + 0.3500 = 0.9603$$

$$1 - 0.9603 = 0.0397$$

$$0.3897 \leftarrow$$

$$0.3897 - 0.3500 = 0.0397$$

4. The length of a float in the MACY's Thanksgiving Day parade normally distributed and typically is 7.6 meters with a standard deviation of 0.55 meters:

You are told to determine the maximum length that would make the following statement true:

Macy's has told us that 48% of all floats are between 7.2 meters and 7.91 meters

YOU MUST SHOW WORK TO RECEIVE CREDIT

$$\frac{7.2 - 7.6}{0.55} = -0.73$$

look up

$$0.7127 = 0.2327 + 0.4800$$

$$(0.7127) \rightarrow 0.56$$

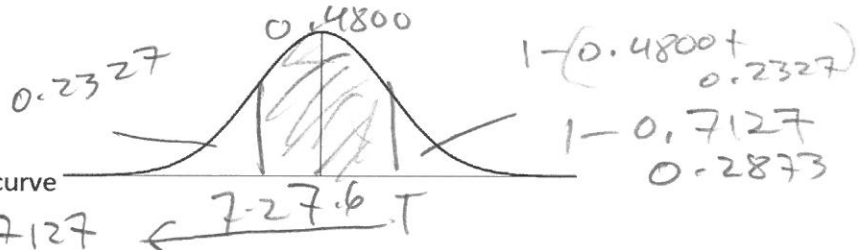
OR look up 0.2873 & change sign

What is the probability statement for this scenario? $P(7.2 \leq X \leq T) = 0.4800$

$$\text{mean} + SD(Z) = 7.6 + 0.55(0.56) \approx 7.91$$

What is the associated length with this problem? 7.908 (round to four decimal places)

Sketch the scenario on the provided normal curve



5. The weight of a certain type of frozen turkey is said to be normally distributed and is typically 18.6 pounds with a standard deviation of 2.8 pounds

You are told to determine the minimum weight that would make the following statement true:

The Poultry Commission states that 40% of all turkeys are between 10.2 / 10.17 / 10.14 pounds and 17.9 pounds

YOU MUST SHOW WORK TO RECEIVE CREDIT

$$\frac{17.9 - 18.6}{2.8} = -0.25$$

look up 0.0013
 $\begin{matrix} < -3 \\ < -3.01 \\ < -3.02 \end{matrix}$

What is the probability statement for this scenario? $P(B \leq X \leq 17.9) = 0.4000$

$$\text{mean} + SD(Z) = 18.6 + 2.8(-3) = 10.2 \quad 18.6 + 2.8(-3.02) = 10.144$$

$$\text{mean} + SD(Z) = 18.6 + 2.8(-3.01) = 10.172$$

What is the associated weight with this problem? 10.2 / 10.17 / 10.14 (round to four decimal places)

Sketch the scenario on the provided normal curve

