

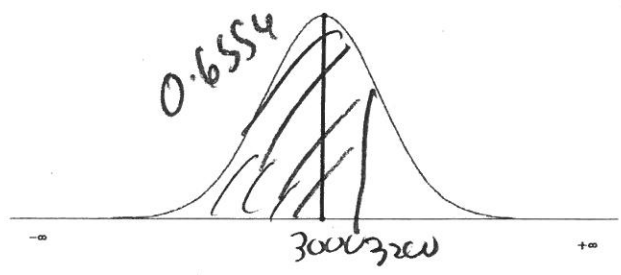
GUIDED NOTES Applications of Normal Curves 1-28-19

Residents of a small town have savings which are normally distributed with a mean of \$3000 and a standard deviation of \$500.

1. What percentage of townspeople have savings greater than \$3200?

$$\frac{0.6554}{69.54\%}$$

$$\frac{3200 - 3000}{500} = 0.4$$



2. Shade and label the related normal curve

3. State the related Z score from the CHART  $z = 0.4$

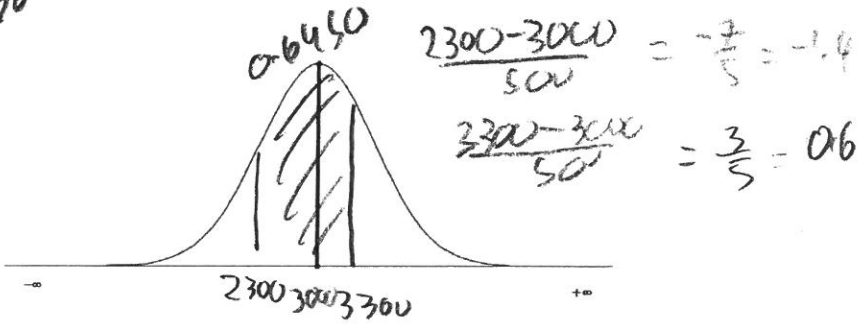
4. A townspeople is chosen at random. What is the probability that townspeople has savings between \$2300 and \$3300?  $0.6449 \approx 64.49\%$

$$P(X < 3300) = 0.7259$$

$$P(X < 2300) = 0.0808$$


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$$0.6449$$



5. Shade and label the related normal curve

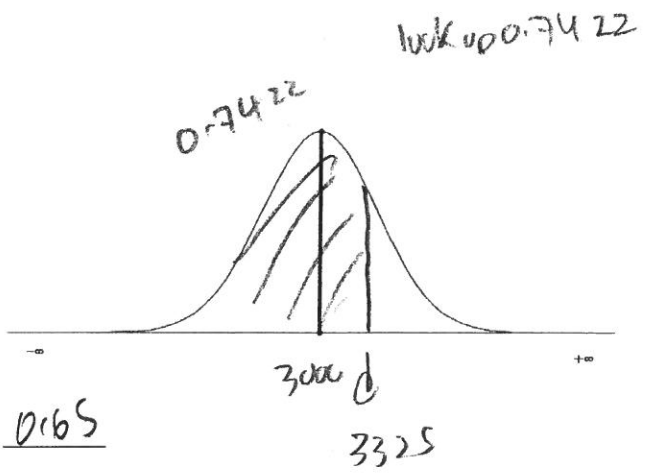
6. State the related Z scores  $z = -1.4$  &  $z = 0.6$

7. The percentage of townspeople with savings less than  $d$  dollars is 74.22%. Find the value of  $d$ .

$$d = 3325$$

$$z = 0.65$$

$$d = 3000 + 500(0.65)$$



8. Shade and label the related normal curve

9. State the related Z score from the CHART  $z = 0.65$

The height of a plant is normally distributed and typically is 15.6 inches with a standard deviation of 1.3 inches:

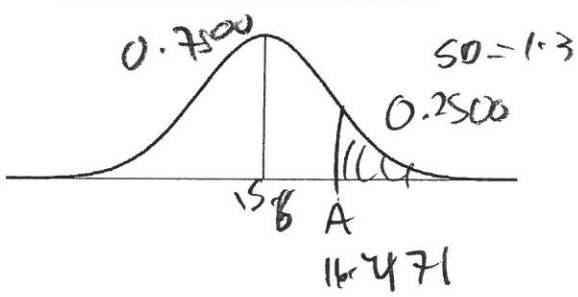
10. You randomly selected a plant in the top 25% of all plants of this type

What is the probability statement for this scenario?  $P(X > A) = 0.2500$   
 $P(X < A) = 0.7500$

State the related z score(s) =  $0.67$

What is the associated height with this problem?  $16.471$   
 $15.6 + 0.67(1.3)$

Sketch the scenario on the provided normal curve



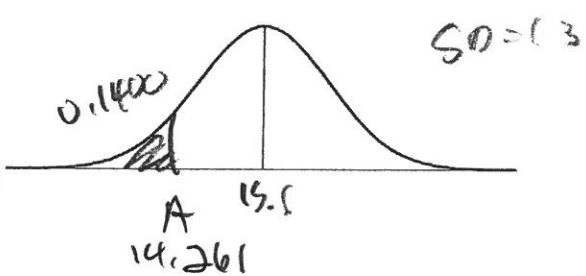
11. You randomly selected a plant in the bottom 14% of all plants of this type

What is the probability statement for this scenario?  $P(X < A) = 0.1400$

State the related z score(s) =  $-1.08$

What is the associated height with this problem?  $14.261$   
 $15.6 + 1.3(-1.08)$

Sketch the scenario on the provided normal curve



12. You randomly selected a plant that is between 14 inches and 14.5 inches of all plants of this type

What is the probability statement for this scenario?  $P(14 < X < 14.5) =$

State the related z score(s) =  $-1.23, -0.85$   
 $\frac{14 - 15.6}{1.3} = -0.85$      $\frac{14.5 - 15.6}{1.3} = -1.23$

What is the associated probability with this problem?  $0.0884$      $8.84\%$

$P(X < 14.5) = 0.1093$   
 $P(X < 14) = 0.1977$

Sketch the scenario on the provided normal curve

