

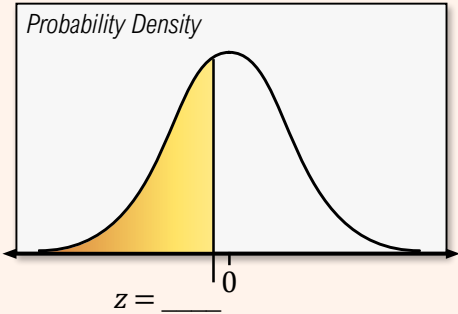
TOPIC: STANDARD NORMAL DISTRIBUTION

Finding Standard Normal Probabilities using the z-Table

- ◆ Recall: For CRV's, probability = area under density curve. For St. Norm. Dist., we find these areas using a _____.
 - Sketch the normal curve, then look up z-score in table, which **ALWAYS** show areas to the _____ of that score.

EXAMPLE

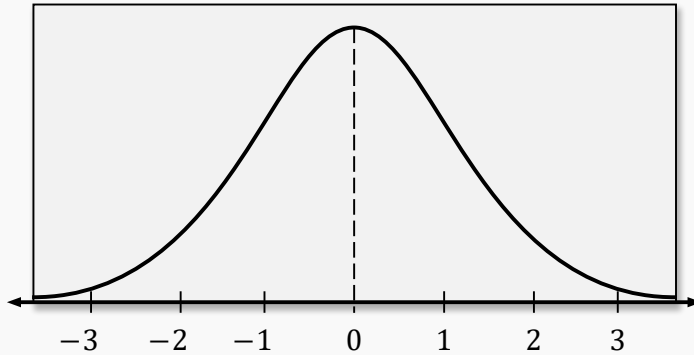
Sketch a graph to represent each probability, then find it using a z-table.

Area to Left	Area to Right	Area Between 2 Values
(A) $P(Z < -0.64)$  z = _____ z-score to look up in table: _____ Probability from table: _____ $P(Z < -0.64)$: _____	(B) $P(Z > 2.27)$  Recall $P(A') = 1 - P(A)$ z-score to look up in table: _____ Probability from table: _____ $P(Z > 2.27)$: _____	

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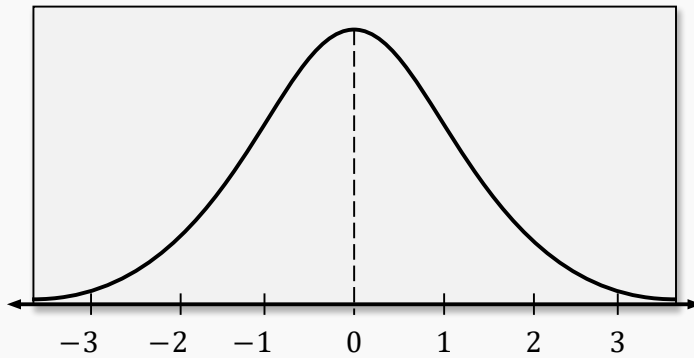
PRACTICE

Find the area under the standard normal distribution to the **left** of a z -score of 1.21.



PRACTICE

Find the area under the standard normal distribution to the **right** of a z -score of -0.44 .



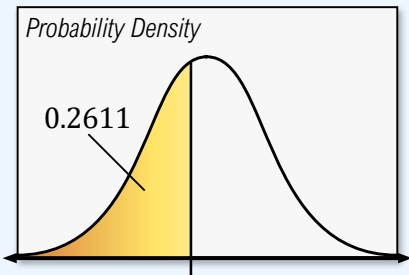
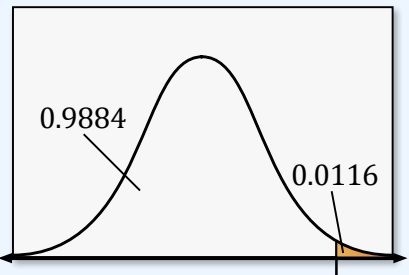
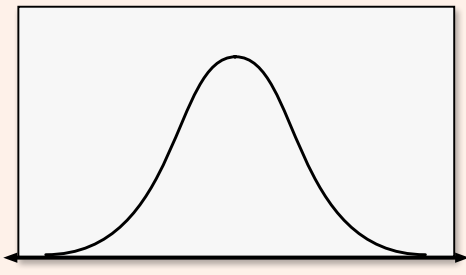
TOPIC: STANDARD NORMAL DISTRIBUTION

Finding Probabilities Between Two z-Scores using the z-Table

◆ To find probabilities between two given z-scores, _____ the area of the smaller z-score from the larger.

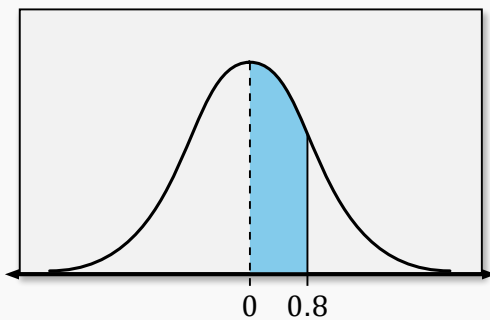
EXAMPLE

Sketch a graph to represent each probability, then find it using a z-table.

Recall	Area to Left	Area to Right	New	Area Between 2 z-Scores	
(A)	$P(Z < -0.64)$	(B)	$P(Z > 2.27)$	(C)	$P(-0.64 < Z < 2.27)$
					
z-score to look up: -0.64 Probability from table: 0.2611 $P(Z < -0.64): 0.2611$		z-score to look up: 2.27 Probability from table: 0.9884 $P(Z > 2.27): 1 - 0.9884 = 0.0116$		z-score to look up: _____, _____ Probability from table: _____, _____ $P(-0.64 < Z < 2.27) =$ _____ - _____ = _____	

PRACTICE

Find the area of the shaded region under the standard normal distribution.



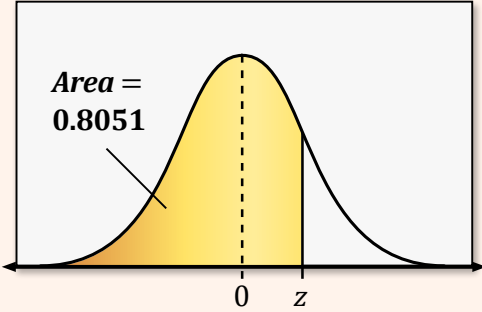
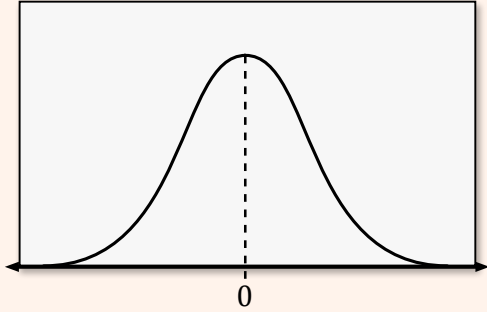
TOPIC: STANDARD NORMAL DISTRIBUTION

Finding Z-Scores From Probabilities using z-Table

- ◆ Recall: To find prob's of standard normal dist. using z-table, **look up** given z-score → **find** probability.
 - You may be asked to do the opposite: using z-table, **look up** given probability → **find** z-score.

EXAMPLE

Find the z-score from each probability. Sketch the region under the normal curve if not given.

New	Given Area to Left	Given Area to Right
(A)	Find the z-score from the given area.	(B) $P(Z > z) = 0.6700$
		
Probability given: _____	Probability given: _____	
Probability to look up in table: _____	Probability to look up in table: _____	
z-score: _____	z-score: _____	

- ◆ If given area to the **right** of a z-score, you **MUST** first solve for the area to the _____ before using z-table.

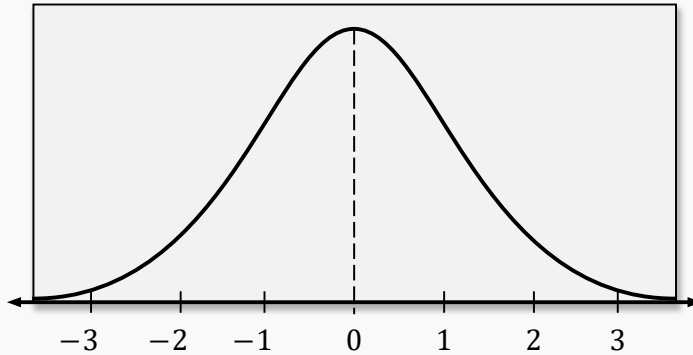
Recall

$$P(A') = 1 - P(A)$$

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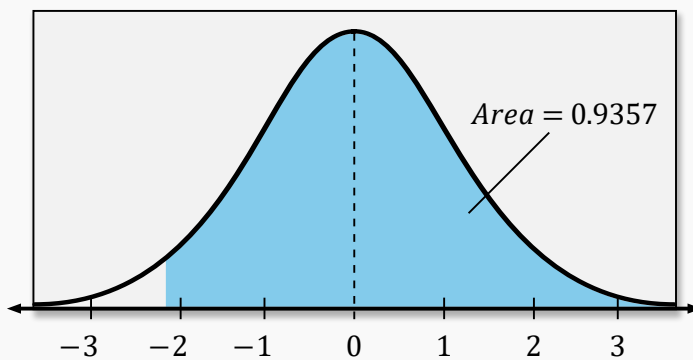
PRACTICE

Find the z -score such that $P(Z < z) = 0.6331$

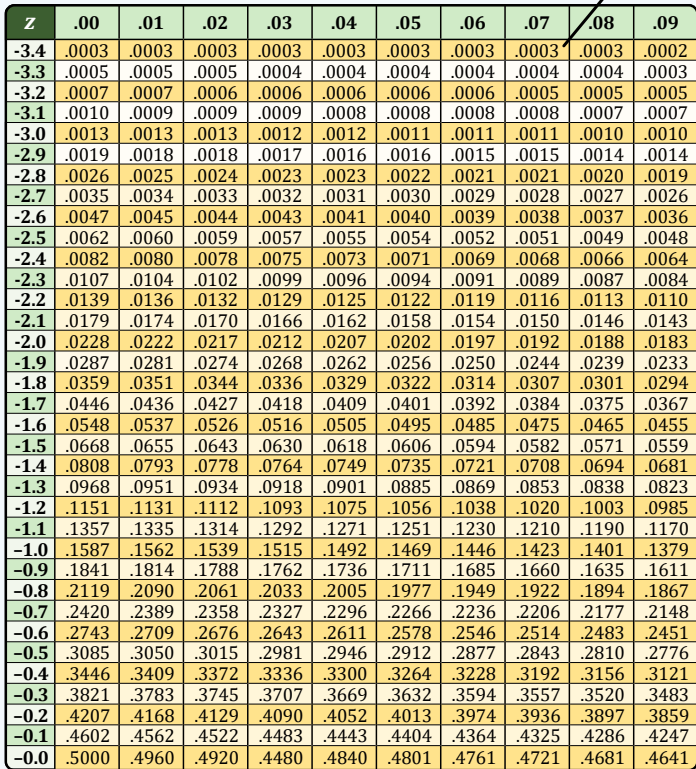


PRACTICE

Find the z -score corresponding to the probability/area shown under the standard normal curve below.



z-Table



Values are cumulative areas / probabilities from the **LEFT**

