GRAPHS AND STATISTICS: Normal Distributions – 100% <u>www.jmap.org</u>

The question may require you to determine the percent of a normal distribution within a given interval. The question may be in terms of probability instead of percent.

The scores on a collegiate mathematics readiness assessment are approximately normally distributed with a mean of 680 and a standard deviation of 120.

Determine the percentage of scores between 690 and 900, to the *nearest percent*.

	012328aii
	rad 📘 🗙
Normal Cdf	A
Add a Calculator page.	•
Enter menu 5 5 2 to bring up this wizard Upper Bound: 900	
μ: 680	•
Enter 690 as the Lower Bound, 900 as the Upper Bound, 680	•
as the mean, u , and 120 as the standard deviation, o.	Cancel
normCdf(690,900,680,120)	0.43
To determine a value, as required by this question, you must	
show the calculator input, such as by writing the information on either screen	
43 is the correct response.	
	~
Some questions have no stated Lower Bound.	
The distribution of the diameters of ball bearings made under a	a
given manufacturing process is normally distributed with a mean o	f
4 cm and a standard deviation of 0.2 cm. What proportion of the bal	1
bearings will have a diameter less than 3.7 cm?	
(1) 0.0668 (3) 0.8664	
(2) 0.4332 (4) 0.9500	081711aii

	4 1.1 ▶ *Doc RAD X
 Add a Calculator page. Enter menu, 5, 5, 2 to bring up this wizard. Enter 0 as the Lower Bound, 3.7 as the Upper Bound, 4 as the mean, <i>u</i>, and 0.2 as the standard deviation, σ. 	Normal Cdf Lower Bound: 0 + Upper Bound: 3.7 + µ: 4 + o: þ.2 + OK Cancel
 (1) is the correct response. If this were an open ended question, you must show the calculator input, such as by writing the information on either screen. 	▲ 1.1 *Doc RAD × normCdf(0,3.7,4,0.2) 0.07 0.06680722872027 0.07 ↓ ↓ ↓ ↓ ↓
Some questions have no stated Upper Bound.	
The mean intelligence quotient (IQ) score deviation of 15, and the scores are normally information, the approximate percentage of IQ greater than 130 is closest to	is 100, with a standard y distributed. Given this f the population with an
(1) 2% (3) 48%	
Add a Calculator page. Enter menu, 5, 5, 2 to bring up this wizard. Enter 130 as the Lower Bound, 250 as the Upper Bound, 100 as the mean, <i>u</i> , and 15 as the standard deviation, o. I chose a	Image: Normal Cdf Normal Cdf Upper Bound: 130 µ: 100 σ: 15
value 10 <i>u</i> above the mean as the Opper Bound.	OK Cancel

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1			RAD 📘 🗙	
		normCdf(130,250,100,15)	0.02	
(1) is the correct If this were an open ended que calculator input, such as by writi screer	et response. estion, you must show the ng the information on either n.	*	4	
Some questions require yo	ou to use the percentage	to make a prediction.		
The heights of the 3300 students at Oceanview High School are approximately normally distributed with a mean of 65.5 inches and a standard deviation of 2.9 inches. The number of students at Oceanview who are between 64 and 68 inches tall is closest to				
(1) 1660	(3) 2244			
(2) 1070	(4) 1640		062214aii	
Add a Calcula			002211411	
	itor page.			
Enter menu, 5, 5, 2 to bi	ttor page. ring up this wizard.	 ▲ 1.1 ▶ ¹/₂₀₀ normCdf(64,68,65.5,2.9) 	RAD X	
Enter menu, 5, 5, 2 to be Enter 64 as the Lower Bound, 64 as the mean, u , and 2.9 as the star the result by the	 tor page. ring up this wizard. 8 as the Upper Bound, 65.5 ndard deviation, o. Multiply population. 	 1.1 ▶ ▲ ▲ > normCdf(64,68,65.5,2.9) 0.50318144422914 · 3300 	0.50 1660.50	
Enter menu, 5, 5, 2 to be Enter 64 as the Lower Bound, 6 as the mean, u , and 2.9 as the star the result by the (1) is the correc	ttor page. ring up this wizard. 8 as the Upper Bound, 65.5 ndard deviation, σ. Multiply population. t response.	 1.1 ▶ ▲ ▲ > normCdf(64,68,65.5,2.9) 0.50318144422914 · 3300 	0.50 1660.50	
Enter menu, 5, 5, 2 to be Enter 64 as the Lower Bound, 66 as the mean, <i>u</i> , and 2.9 as the star the result by the (1) is the correct If this were an open ended que calculator input, such as by write screen	 tor page. ring up this wizard. 8 as the Upper Bound, 65.5 ndard deviation, o. Multiply population. t response. estion, you must show the ting the information on the n. 	 1.1 ▶ ▲ ▲ → ○ normCdf(64,68,65.5,2.9) 0.50318144422914 · 3300 	0.50 0.50 1660.50	
Enter menu, 5, 5, 2 to be Enter 64 as the Lower Bound, 64 as the mean, <i>u</i> , and 2.9 as the star the result by the (1) is the correct If this were an open ended que calculator input, such as by write screent	tor page. ring up this wizard. 8 as the Upper Bound, 65.5 ndard deviation, σ. Multiply population. t response. estion, you must show the ting the information on the <u>h</u> ou to remember that in a	 ▲ 1.1 ▶ ▲ ▲ → normCdf(64,68,65.5,2.9) 0.50318144422914 · 3300 a normal distribution, about the second second	0.50 1660.50 out 95% of	
Enter menu, 5, 5, 2 to be Enter 64 as the Lower Bound, 6 as the mean, <i>u</i> , and 2.9 as the star the result by the (1) is the correct If this were an open ended que calculator input, such as by write screent Other questions require you values fall within two stan	tor page. ring up this wizard. 8 as the Upper Bound, 65.5 ndard deviation, o. Multiply population. t response. estion, you must show the ting the information on the <u>n</u> ou to remember that in a dard deviations of the r	1.1 Solution normCdf(64,68,65.5,2.9) 0.50318144422914·3300 a normal distribution, about 68% of solution	RAD X 0.50 1660.50 1660.50 0 out 95% of values fall 0	
Enter menu, 5, 5, 2 to be Enter 64 as the Lower Bound, 6 as the mean, <i>u</i> , and 2.9 as the star the result by the (1) is the correct If this were an open ended que calculator input, such as by write screen Other questions require you values fall within two stan within one standard deviat	tor page. ring up this wizard. 8 as the Upper Bound, 65.5 ndard deviation, o. Multiply population. t response. estion, you must show the ting the information on the but to remember that in a dard deviations of the re- tion of the mean.	1.1 Solution normCdf(64,68,65.5,2.9) 0.50318144422914·3300 a normal distribution, abmean and about 68% of solution	RAD X 0.50 1660.50 1660.50 0 out 95% of values fall	