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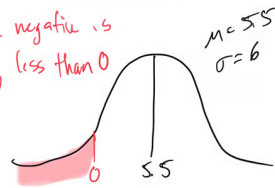
Stats / Normal distribution: Finding a probability, basic

Using ALEKS Calculator:

Suppose that the annual rate of return for a common biotechnology stock is normally distributed with a mean of 5.5% and a standard deviation of 6%. Find the probability that the one-year return of this stock will be negative. Round your answer to at least four decimal places.

0.1796

will be negative is anything less than 0



$$z = \frac{x - \mu}{\sigma}$$

$$z = \frac{0 - 5.5}{6}$$

$$z = -0.9167$$

Since we want less than 0 we use $P(Z \leq 0)$ in the calculator

Calculator

$P(Z \leq \frac{0 - 5.5}{6})$

Store	Recall	Undo	C
Σx	Σx^2	$\bar{x}$	S_x
Sort	$\square, \square, \dots$	(	)
$\sqrt{x}$	$n!$	log	ln
${}_nP_r$	${}_nC_r$	10^x	e^x
$Z_{\square}$	$t_{\square}$	$z_{\square}^2$	$F_{\square}$
$P(Z \leq \square)$	$P(t > \square)$	$P(z^2 > \square)$	$P(F > \square)$
$P(B_{\square} < \square \leq B_{\square})$	x^y	$\pm$	π
7	8	9	$\div$
4	5	6	$\times$
1	2	3	$-$
0	.	=	+

Normal distribution: Finding a probability, basic

Suppose that pulse rates among healthy adults are normally distributed with a mean of 79 $\frac{\text{beats}}{\text{minute}}$ and a standard deviation of 10 $\frac{\text{beats}}{\text{minute}}$. What proportion of healthy adults have pulse rates that are at least 61 $\frac{\text{beats}}{\text{minute}}$? Round your answer to at least four decimal places.

0.9641



$$z = \frac{x - \mu}{\sigma}$$

$$z = \frac{61 - 79}{10}$$

$$z = -1.8$$

Since we want at least 61 we have to do $1 - P(Z \leq 0)$ in the calculator to "flip the sign"

Calculator

$1 - P(Z \leq \frac{61 - 79}{10})$

Store	Recall	Undo	C
Σx	Σx^2	$\bar{x}$	S_x
Sort	$\square, \square, \dots$	(	)
$\sqrt{x}$	$n!$	log	ln
${}_nP_r$	${}_nC_r$	10^x	e^x
$Z_{\square}$	$t_{\square}$	$z_{\square}^2$	$F_{\square}$
$P(Z \leq \square)$	$P(t > \square)$	$P(z^2 > \square)$	$P(F > \square)$
$P(B_{\square} < \square \leq B_{\square})$	x^y	$\pm$	π
7	8	9	$\div$
4	5	6	$\times$
1	2	3	$-$
0	.	=	+

How to do it in Excel:

Problem Explanation Another Explanation

Show Another

Normal distribution: Finding a probability, basic

QUESTION

Suppose that the antenna lengths of woodlice are approximately normally distributed with a mean of 0.2 inches and a standard deviation of 0.05 inches. What proportion of woodlice have antenna lengths that are at least 0.27 inches? Round your answer to at least four decimal places.

	A	B	C	D
1	What you are finding	Answer	Formula	
2				
3	Mean	0.2	Type in from problem	
4	Standard Deviation	0.05	Type in from problem	
5	Data Value	0.27	Type in from problem	
6				
7	Percentage to the left	0.9192433408	=NORMDIST(B5, B3, B4,1)	This gives you the area to the left
8	Percentage to the right	0.08075665923	=1-NORMDIST(B5, B3, B4,1)	But we want the area to the right, so do 1 - that number

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