Standard Dev. of Discrete R.V. (and Variance)

$\sigma_x = \sqrt{\sum p_i (x_i - \mu_x)^2}$

Variance $= \sigma_x^2$

Continuous Random Variables:

when there is an infinite amount of possible values.

(over an entire interval of #'s)

ex: height of waves at a beach

ex: #'s between 0 and 1

probability distribution is a density curve (ch. 2)

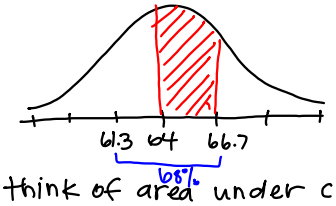
(area underneath = 1)

THINK BACK TO CH. 2!!

Normal Probability Models

Data can be Normally distributed, and so can probability.

ex: height of women $N(64, 2.7)$



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

*think of area under curve - same as always, but now it is a probability.

Q: what is the probability that a chosen woman is between 64 and 66.7 inches tall?

$\frac{68\%}{2} = 34\% = .34$

If I add/subtract 2 normal rand. variables then I'll get a Normal distribution

6.2a Transforming a Random Variable

	Center	Shape	Spread
add/subtract a (a = constant)	add/subtract a	no change	no change
mult/divide by a	mult/divide by a	no change	mult. by $\lvert a \rvert$

ex: Furnace Repair - repair person charges $50 + $30/hr.

Let X = # of hours

X	1	2	3	4
P(x)	.4	.3	.2	.1

Q: Find the expected cost of the repair.

$\mu_X = 1(.4) + 2(.3) + 3(.2) + 4(.1) = 2$ ← expected # of hrs

$Cost = 50 + 30X$

$\mu_{cost} = 50 + 30\mu_X$

$\mu_{cost} = 50 + 30(2)$

$= 50 + 60$

$= \$110$