* Urn w/ 4 red and 6 blue marbles
* 7 marbles are drawn, with replacement
* What is prob of at least 3 and no more than 6 blue marbles? Give:

$P(\quad) = b(j;\ ,\ ) = b = B = \#$

$P(2 \le X \le 7) = \sum_{x=2}^{7} f(x) = F(7) - F(\ ) = \#$

$$P(3 \leq X \leq 6) = \sum_{x=3}^{6} b(x; 7, 0.6)$$

$$= B(6; 7, 0.6) - B(2; 7, 0.6)$$

$$= 0.8758 \text{ sez Alan}$$

$$\int_{x=2}^{6} \sqrt{2x-3}\,dx = \int_{u=1}^{9} \frac{1}{2}\sqrt{u}\,du$$

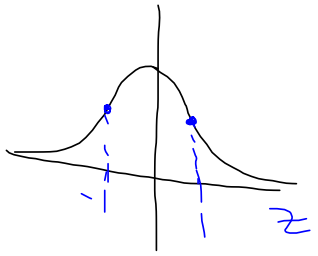
Let $u = 2x-3$ When $x=2$, $u=1$

$du = 2dx$ $x=6$, $u=9$

$\frac{1}{2}du = dx$

Standard Normal Distribution

$$f(z) = \frac{1}{\sqrt{2\pi}} e^{-\frac{1}{2}z^2}$$



σ^2 is variance

σ is standard deviation

$$P(-.3 \le Z \le 0.7) = \int_{-.32}^{.75} \frac{1}{\sqrt{2\pi}} e^{-\frac{z^2}{2}} dz$$

$$= N(0.75, 0, 1) - N(-0.32, 0, 1)$$

(μ, σ; -0.32)

$$= 0.7734 - 0.3745$$

$$= 0.3989$$

Normal Distribution

$$f(x) = \frac{1}{\sigma\sqrt{2\pi}} e^{-\frac{1}{2}\left(\frac{x-\mu}{\sigma}\right)^2}$$

3" bolts, $\mu = 2.9"$, $\sigma = 0.2"$

What is prob btwn 2.8" and 3.2"?

$$P(2.8 \le X \le 3.2) = \int_{2.8}^{3.2} \frac{1}{0.2\sqrt{2\pi}} e^{-\frac{1}{2}\left(\frac{x-2.9}{0.2}\right)^2} dx$$

$$z = \frac{x-2.9}{0.2} = \frac{x}{0.2} - \frac{2.9}{0.2}$$

$$dz = \frac{1}{0.2}dx$$

$$0.2dz = dx$$

When $x = 2.8$, $z = -0.5$

When $x = 3.2$, $z = 1.5$

$$= \int_{-0.5}^{1.5} \frac{1}{0.2\sqrt{2\pi}} e^{-\frac{1}{2}z^2} 0.2dz$$

$$P(2.8 \leq X \leq 3.2) = N(3.2; 2.9, 0.2) - N(2.8; 2.9, 0.2)$$

$x = 3.2, z = \frac{3.2 - 2.9}{0.2}$

$= 1.5$

$= N(1.5; 0,1) - N(-0.5; 0,1)$

$x = 2.8, z = \frac{2.8 - 2.9}{0.2}$

$= -0.5$

$= 0.6247$ b(3; 5,)