

Statistics

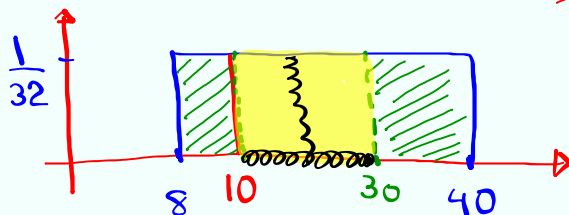
Lecture 10



Feb 19-8:47 AM

Consider a Uniform Prob. dist. for all values
from 8 to 40.

1) Draw & clearly label.



Total Prob

$$2) P(x=10) = 0$$

$$3) P(x < 10 \text{ or } x > 30)$$

$$= 1 - P(10 < x < 30)$$

$$= 1 - (30 - 10) \cdot \frac{1}{32}$$

$$= 1 - \frac{20}{32} = \frac{12}{32} = \boxed{\frac{3}{8}}$$

Nov 1-8:00 AM

4) Find two values that separate the middle 90% from the rest.

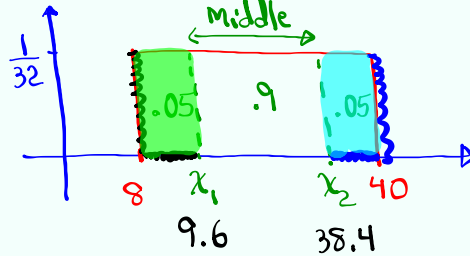
$$1 - .9 = .1, .1 \div 2 = .05$$

$$(x_1 - 8) \cdot \frac{1}{32} = .05$$

$$x_1 - 8 = 32(.05)$$

$$x_1 = 8 + 32(.05)$$

$$\boxed{x_1 = 9.6}$$



$$(40 - x_2) \cdot \frac{1}{32} = .05$$

$$40 - x_2 = 32(.05)$$

$$40 - 32(.05) = x_2$$

$$\boxed{x_2 = 38.4}$$

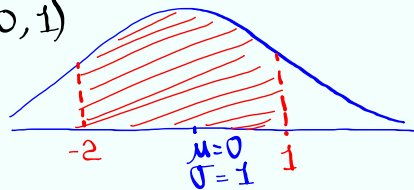
Nov 1-8:06 AM

Find $P(-2 < Z < 1)$

Standard Normal Prob. dist.
 $\mu = 0, \sigma = 1$

$$= \text{normalcdf}(-2, 1, 0, 1)$$

$$= \boxed{.819}$$

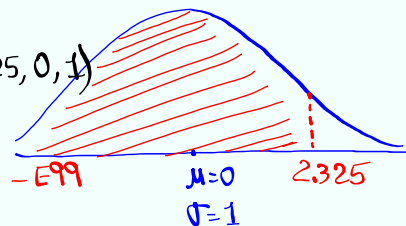


Find $P(Z < 2.325)$

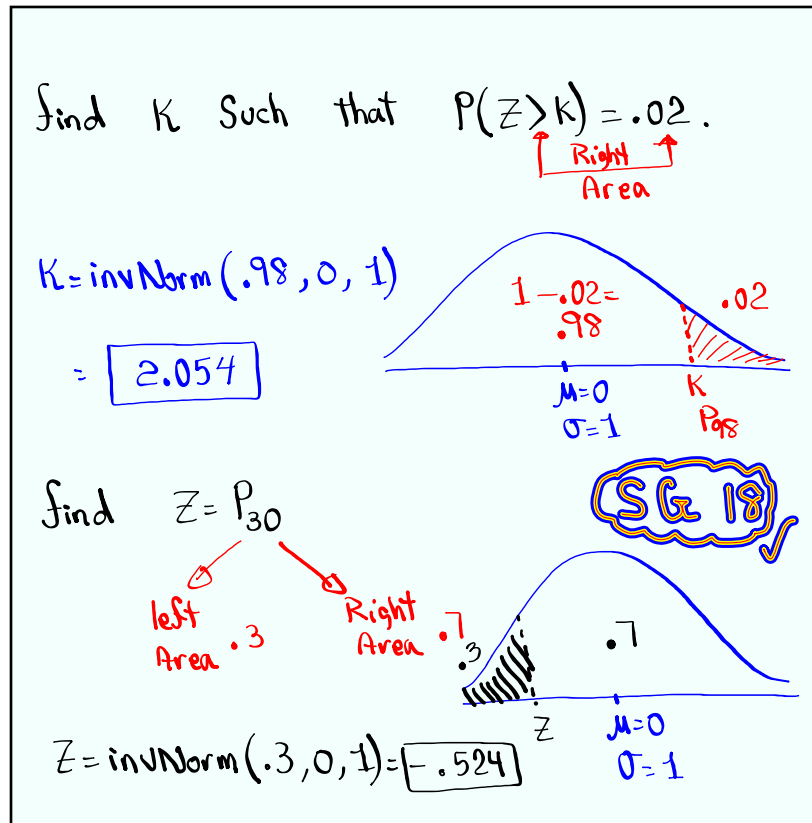
$$= \text{normalcdf}(-E99, 2.325, 0, 1)$$

$$(-) \quad \boxed{\text{end}}$$

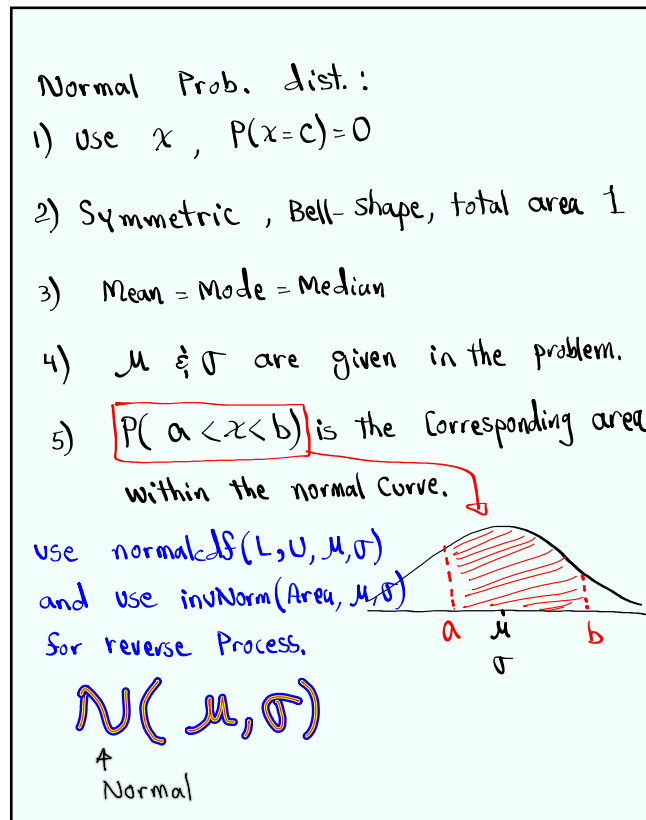
$$\approx \boxed{.990}$$



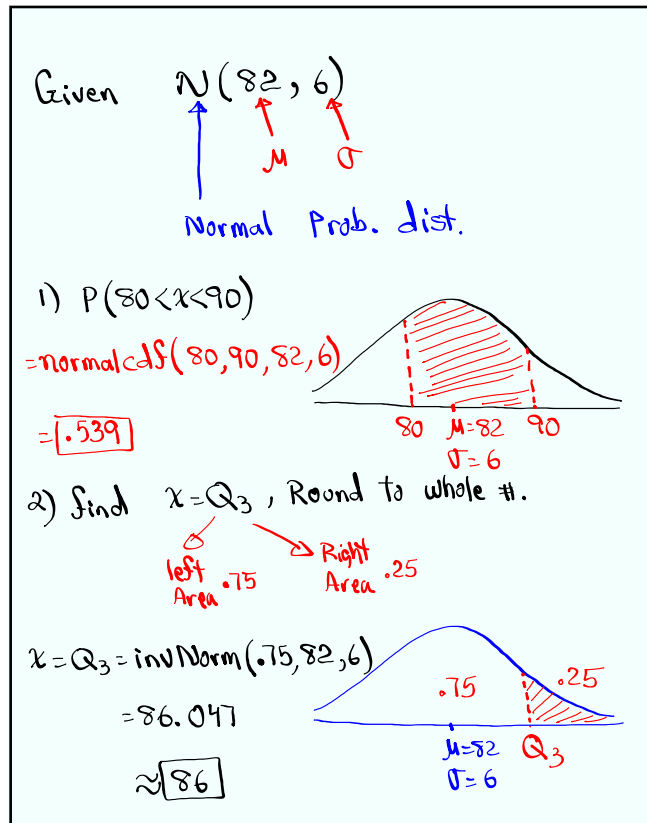
Nov 1-8:12 AM



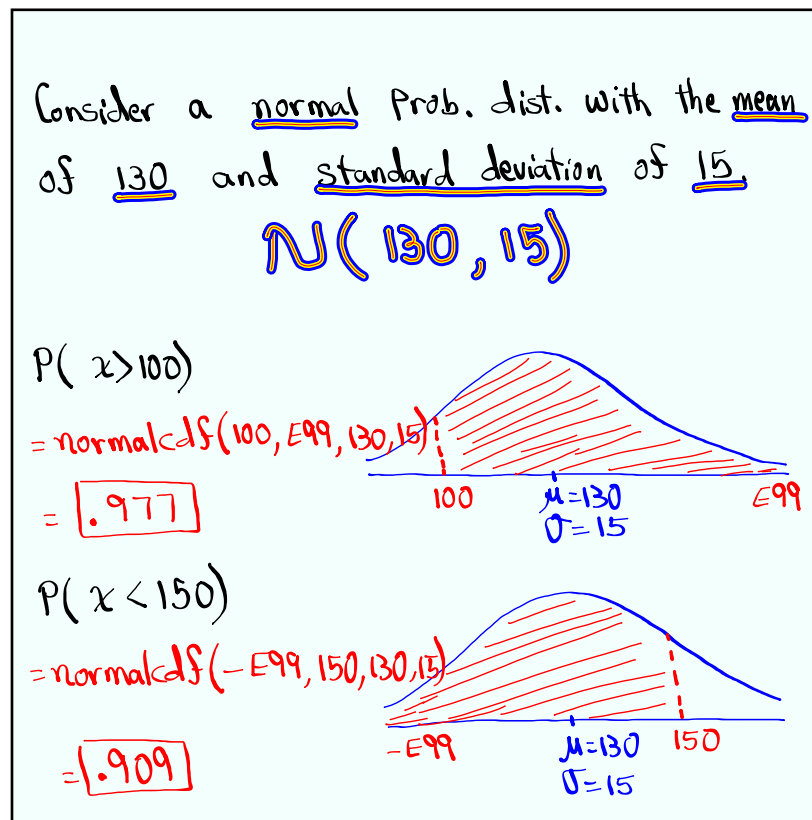
Nov 1-8:19 AM



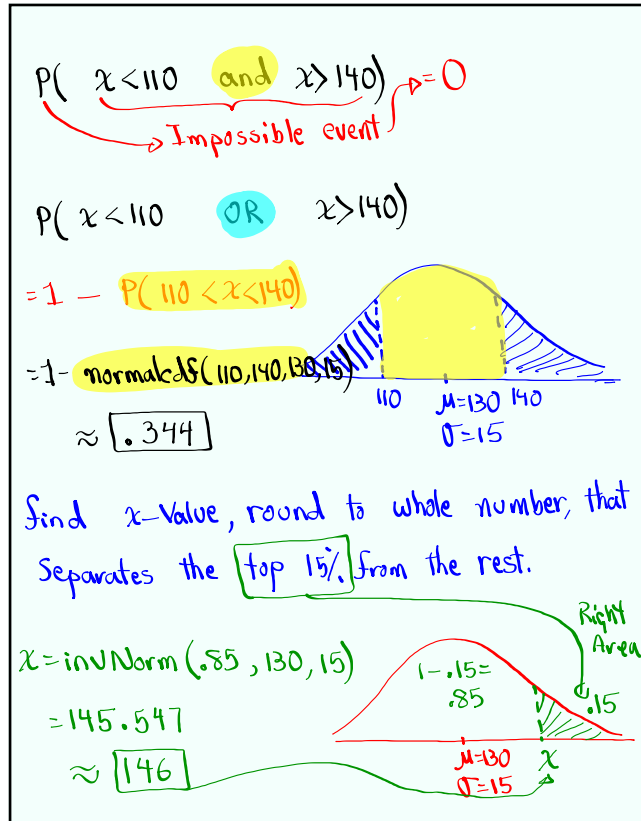
Nov 1-8:25 AM



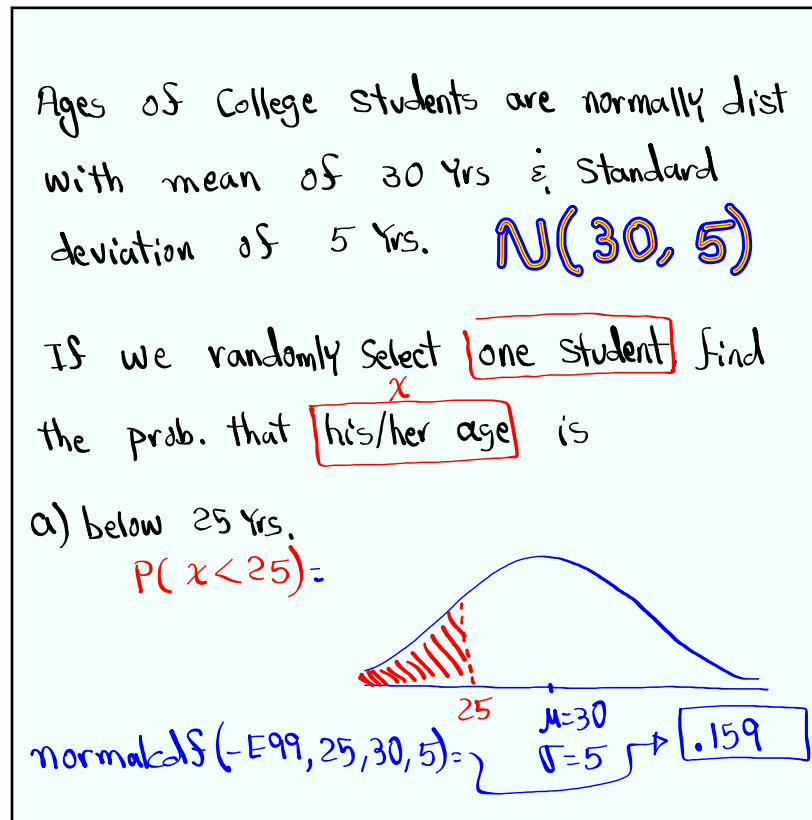
Nov 1-8:31 AM



Nov 1-8:37 AM



Nov 1-8:43 AM



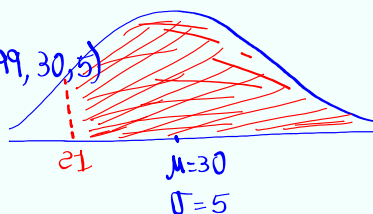
Nov 1-8:51 AM

b) above 21 yrs.

$$P(x > 21)$$

$$= \text{normalcdf}(21, E99, 30, 5)$$

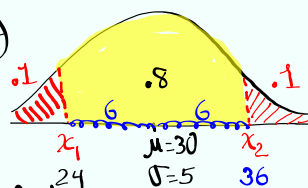
$$= .964$$



Find two ages, Round to whole #, that separate the middle 80% from the rest.

$$x_1 = P_{10} = \text{invNorm}(.1, 30, 5)$$

$$\approx 24$$



$$x_2 = P_{90} = \text{invNorm}(.9, 30, 5)$$

$$\approx 36$$

SG 19 ✓

Nov 1-8:56 AM