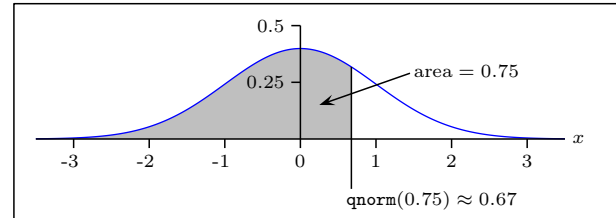
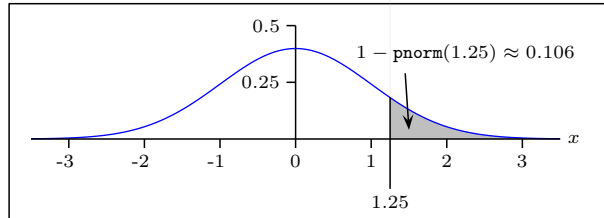
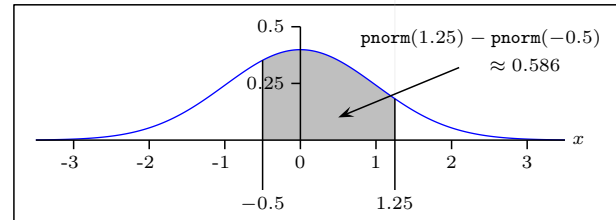
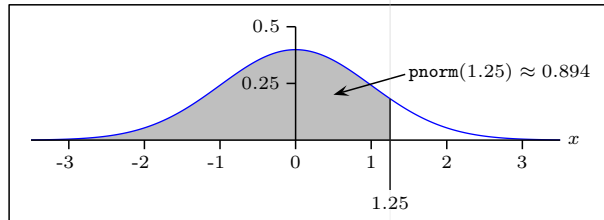




Quiz: Normal Curve (Review) and Correlation



1. **Standard Normal Curve:** Sketch and compute the specified area under the normal curve. Write down the R command that you use.

a) $z < 0.8$

b) $z > -0.8$

c) $-0.8 < z < 2.1$

d) What z is greater than 80% of all z scores?

2. **Test Scores:** Suppose test scores average out to 520 with an sd of 20 and have a normal distribution.

a) What percent of the scores were below 536?

b) What percent were above 504?

c) What percent were between 504 and 562?

d) What score was greater than 80% of all the test scores?

3. **Measurements:** Errors in the measurement of a certain check weight average out to 0.0065 kg plus or minus about 0.0002 kg. Assume that the histogram of measurement errors follows a normal distribution.

a) What percent of the measurements were below 0.00666?

b) What percent were above 0.00634?

c) What percent were between 0.00634 and 0.00674?

d) What measurement was greater than 80% of all the measurements?

4. For the x - y data set below,
- (a) Draw the scatter plot (x - y plot).
 - (b) Compute the mean and sd for the x values.
 - (c) Compute the mean and sd for the y values.
 - (d) Complete the table.
 - (e) Calculate the correlation r .

$$r = \frac{1}{n-1} \sum_{i=1}^n \left(\frac{x_i - \text{mean}_x}{\text{sd}_x} \right) \left(\frac{y_i - \text{mean}_y}{\text{sd}_y} \right) = \frac{1}{n-1} \sum_{i=1}^n z_x \cdot z_y$$

- (f) Add the regression line to your sketch:

$$y - \text{mean}_y = r \frac{\text{sd}_y}{\text{sd}_x} (x - \text{mean}_x)$$

x	y	z_x	z_y	$z_x \cdot z_y$
1	1			
3	7			
4	8			
4	9			
5	10			
7	13			