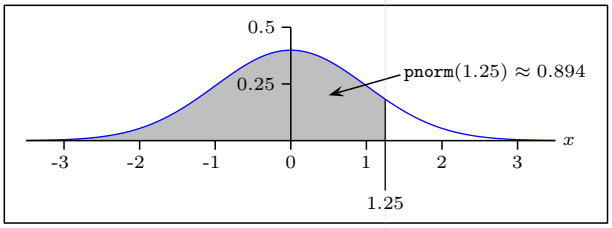
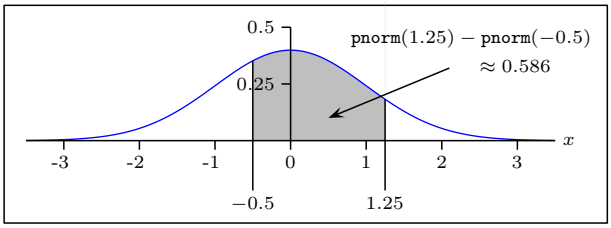
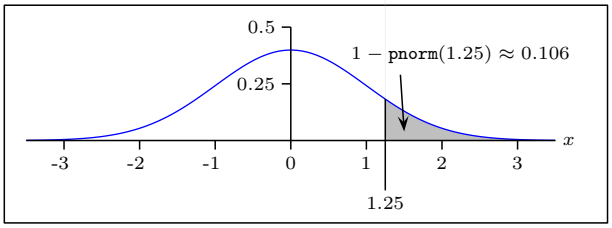
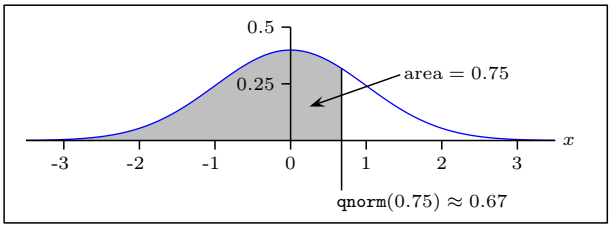
Exercises: The Normal Curve









1. Sketch then, without using a calculator, estimate the specified area under the normal curve.

a) $z > 2$

b) $z > 2$

c) $-1 < z < 2$

d) $1 < z < 2$

e) $z < 10$

f) $z < -7$

g) $-3 < z < 1$

h) $|z| < 1$

2. Use the `pnorm` function in `R` to find the specified areas under the normal curve. Write down the commands that you use.

a) $z < -1.5$

b) $z > 1.8$

c) $z < 7.75$

d) $z < -5.3$

e) $-1.25 < z < 2.25$

f) $1.8 < z < 2.0$

3. Suppose that math SAT scores average out to 520 with a standard deviation of 20. Assume that the histogram of scores follows a normal distribution.

a) About what percent of scores were between 500 and 540?

b) About what percent of scores were below 560?

c) About what percent of scores were over 580?

d) What score is better than 90% of all scores? (Hint: `qnorm`.)

4. 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 is the chance of getting an error measurement greater than 0.0068?

b) What is the chance of getting an error measurement greater than between 0.0064 and 0.0066?

c) About what percent of measurements were over 0.0070?

d) What measurement is larger than 90% of all measurements? (Hint: `qnorm`.)