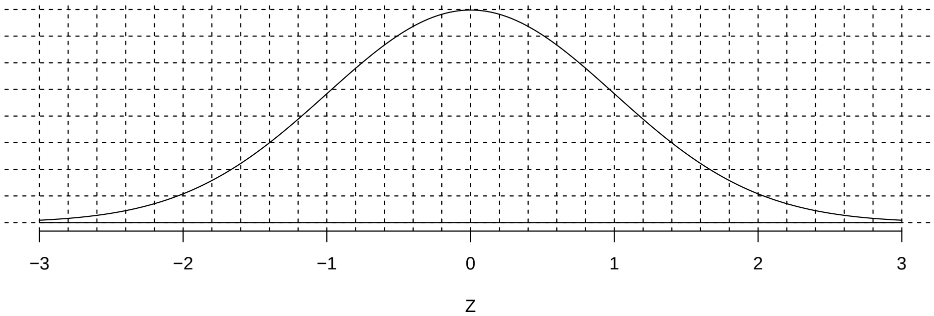
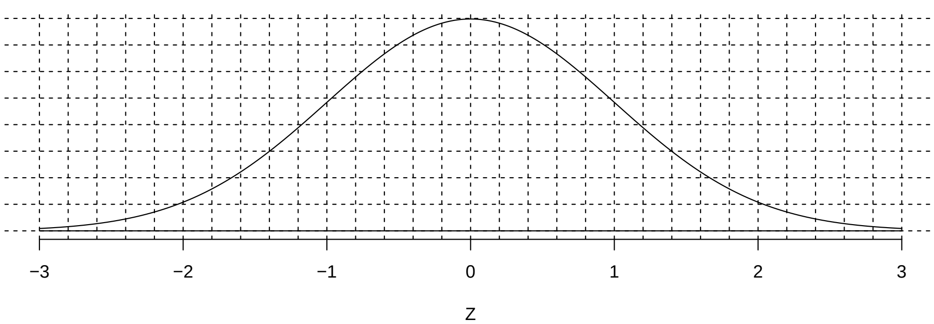
1. **Problem**
   The figure below shows the standard normal density. Each grid square represents 1% of probability.



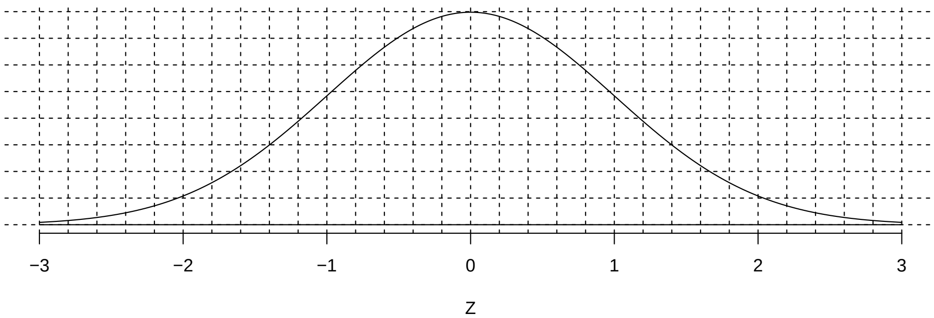
   (a) Estimate $P(Z < 0.6)$ by shading and counting.
   (b) Determine $P(Z < 0.6)$ by using the z-table.

2. **Problem**
   The figure below shows the standard normal density. Each grid square represents 1% of probability.



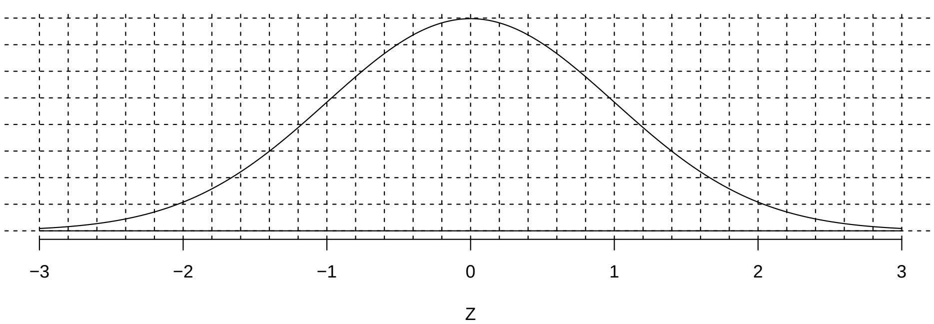
   (a) Estimate $P(Z > 0)$ by shading and counting.
   (b) Determine $P(Z > 0)$ by using the z-table.

3. **Problem**
   The figure below shows the standard normal density. Each grid square represents 1% of probability.



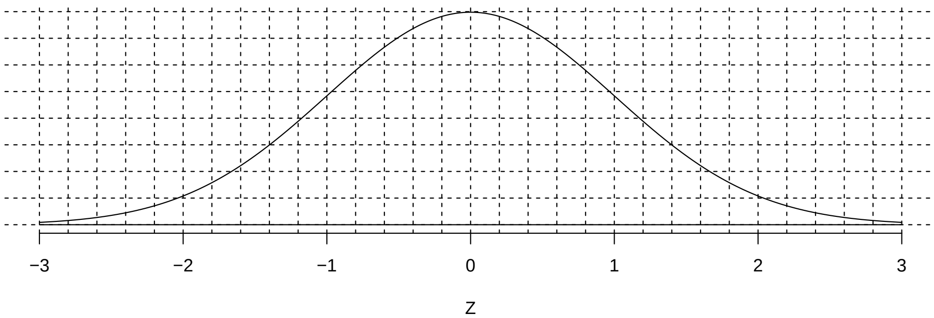
   (a) Estimate $P(|Z| < 1.2)$ by shading and counting.
   (b) Determine $P(|Z| < 1.2)$ by using the z-table.

4. **Problem**
   The figure below shows the standard normal density. Each grid square represents 1% of probability.



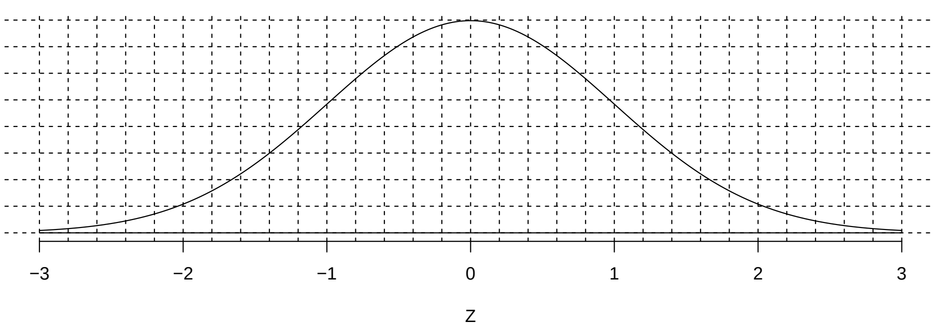
   (a) Estimate $P(|Z| > 1.6)$ by shading and counting.
   (b) Determine $P(|Z| > 1.6)$ by using the z-table.

5. **Problem**
   The figure below shows the standard normal density. Each grid square represents 1% of probability.



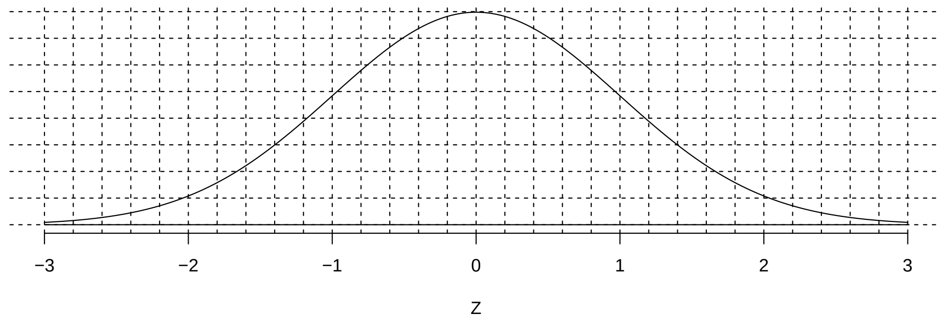
   (a) Estimate z such that $P(Z < z) = 0.12$ by shading and counting.
   (b) Determine z such that $P(Z < z) = 0.12$ by using the z-table.

6. **Problem**
   The figure below shows the standard normal density. Each grid square represents 1% of probability.



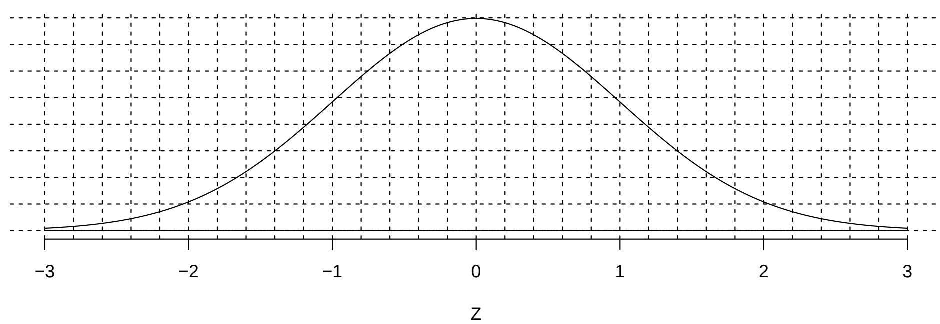
   (a) Estimate z such that $P(Z > z) = 0.66$ by shading and counting.
   (b) Determine z such that $P(Z > z) = 0.66$ by using the z-table.

7. **Problem**
   The figure below shows the standard normal density. Each grid square represents 1% of probability.



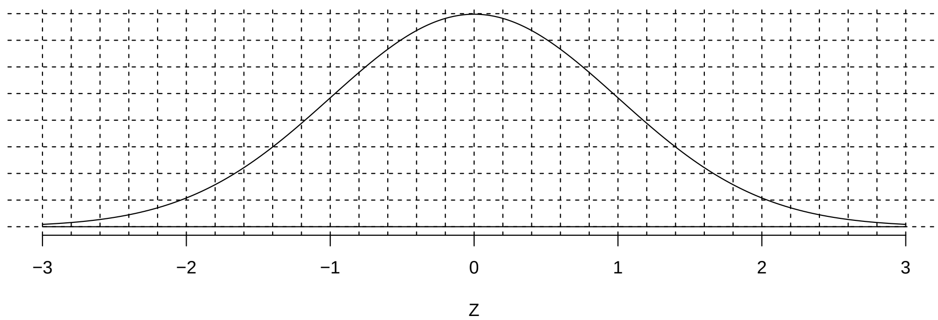
   (a) Estimate z such that $P(|Z| < z) = 0.84$ by shading and counting.
   (b) Determine z such that $P(|Z| < z) = 0.84$ by using the z-table.

8. **Problem**
   The figure below shows the standard normal density. Each grid square represents 1% of probability.



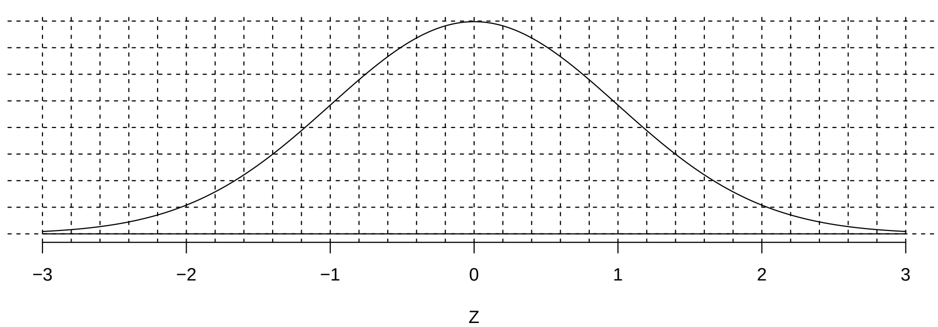
   (a) Estimate z such that $P(|Z| > z) = 0.16$ by shading and counting.
   (b) Determine z such that $P(|Z| > z) = 0.16$ by using the z-table.

9. **Problem**
The figure below shows the standard normal density. Each grid square represents 1% of probability.



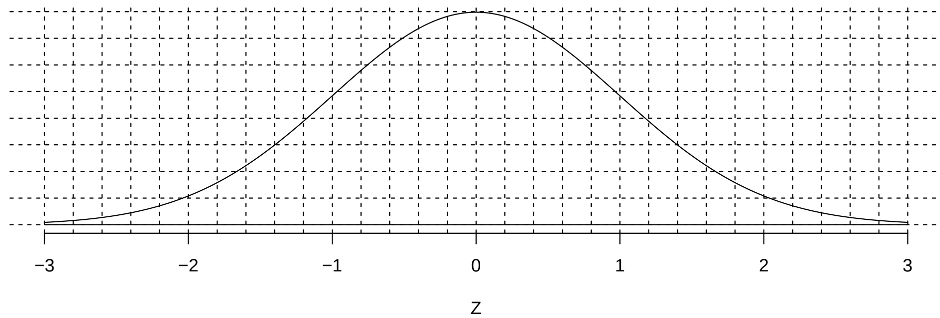
(a) Estimate z such that $P(|Z| > z) = 0.11$ by shading and counting.
(b) Determine z such that $P(|Z| > z) = 0.11$ by using the z-table.

10. **Problem**
The figure below shows the standard normal density. Each grid square represents 1% of probability.



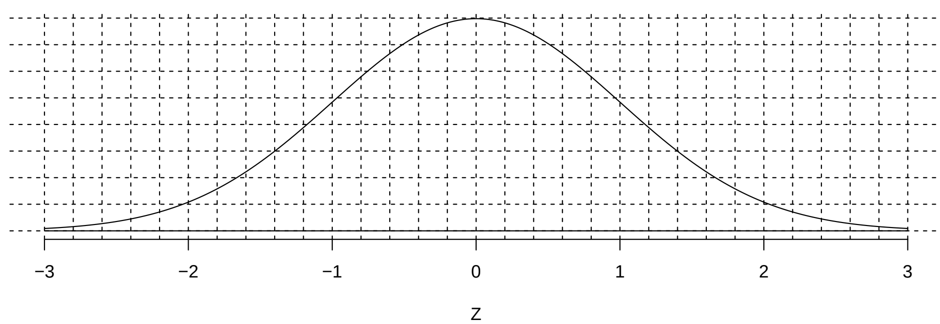
(a) Estimate z such that $P(Z > z) = 0.73$ by shading and counting.
(b) Determine z such that $P(Z > z) = 0.73$ by using the z-table.

11. **Problem**
The figure below shows the standard normal density. Each grid square represents 1% of probability.



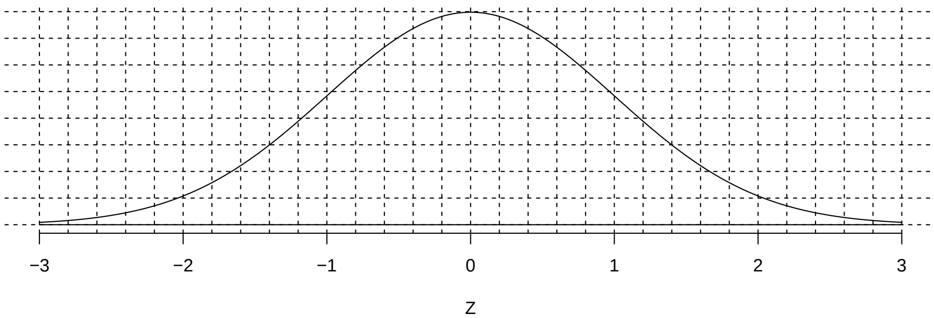
(a) Estimate $P(|Z| < 1.2)$ by shading and counting.
(b) Determine $P(|Z| < 1.2)$ by using the z-table.

12. **Problem**
The figure below shows the standard normal density. Each grid square represents 1% of probability.



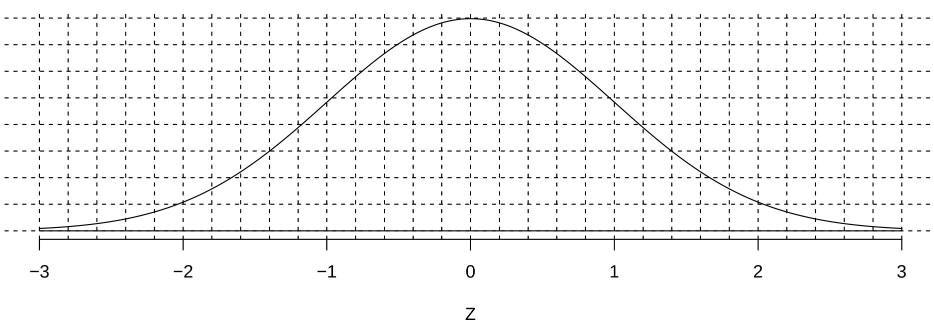
(a) Estimate $P(|Z| > 2)$ by shading and counting.
(b) Determine $P(|Z| > 2)$ by using the z-table.

13. **Problem**
The figure below shows the standard normal density. Each grid square represents 1% of probability.



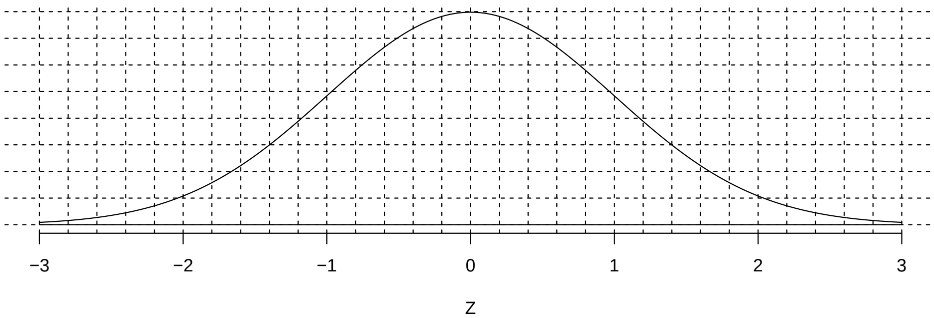
(a) Estimate z such that $P(|Z| < z) = 0.45$ by shading and counting.
(b) Determine z such that $P(|Z| < z) = 0.45$ by using the z-table.

14. **Problem**
The figure below shows the standard normal density. Each grid square represents 1% of probability.



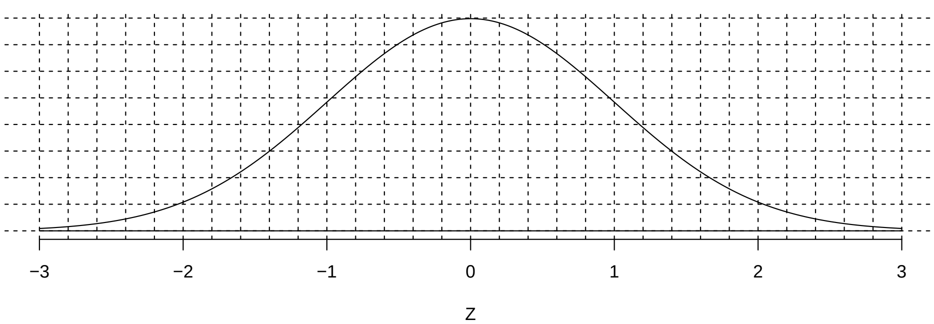
(a) Estimate z such that $P(Z < z) = 0.12$ by shading and counting.
(b) Determine z such that $P(Z < z) = 0.12$ by using the z-table.

15. **Problem**
The figure below shows the standard normal density. Each grid square represents 1% of probability.



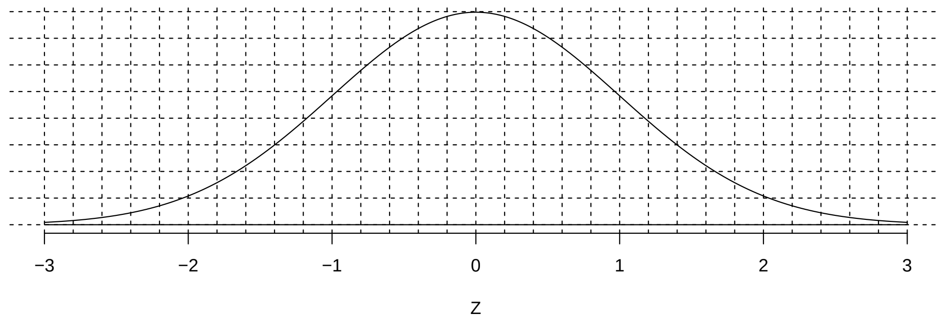
(a) Estimate $P(Z > -0.4)$ by shading and counting.
(b) Determine $P(Z > -0.4)$ by using the z-table.

16. **Problem**
The figure below shows the standard normal density. Each grid square represents 1% of probability.



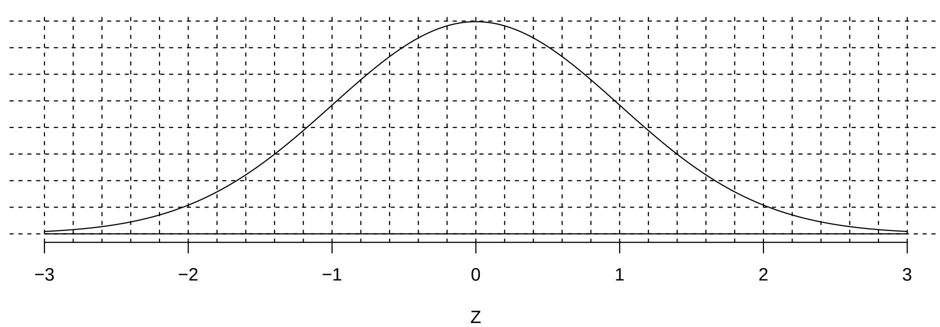
(a) Estimate $P(Z < 0.8)$ by shading and counting.
(b) Determine $P(Z < 0.8)$ by using the z-table.

17. **Problem**
The figure below shows the standard normal density. Each grid square represents 1% of probability.



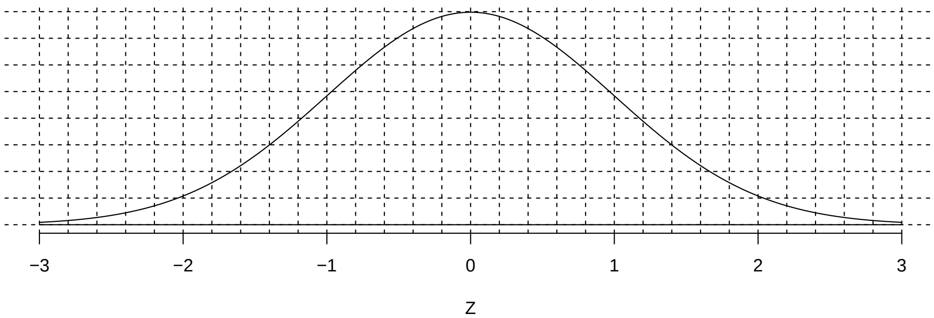
(a) Estimate z such that $P(|Z| > z) = 0.69$ by shading and counting.
(b) Determine z such that $P(|Z| > z) = 0.69$ by using the z-table.

18. **Problem**
The figure below shows the standard normal density. Each grid square represents 1% of probability.



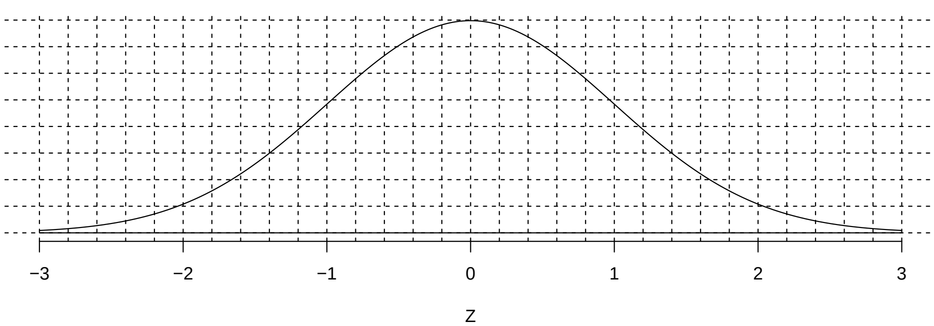
(a) Estimate $P(Z > -1.4)$ by shading and counting.
(b) Determine $P(Z > -1.4)$ by using the z-table.

19. **Problem**
The figure below shows the standard normal density. Each grid square represents 1% of probability.



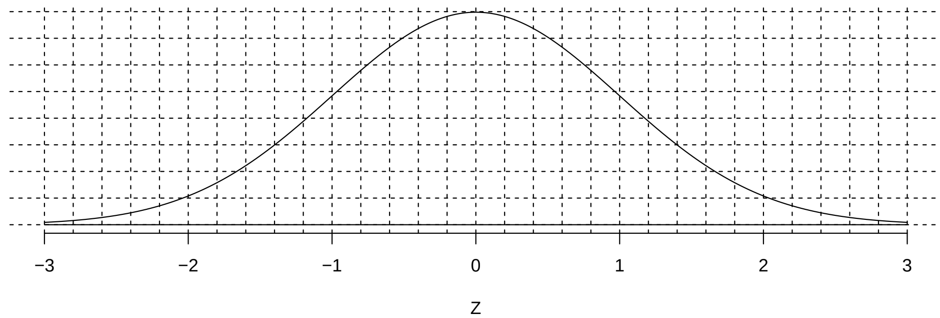
(a) Estimate z such that $P(|Z| < z) = 0.68$ by shading and counting.
(b) Determine z such that $P(|Z| < z) = 0.68$ by using the z-table.

20. **Problem**
The figure below shows the standard normal density. Each grid square represents 1% of probability.



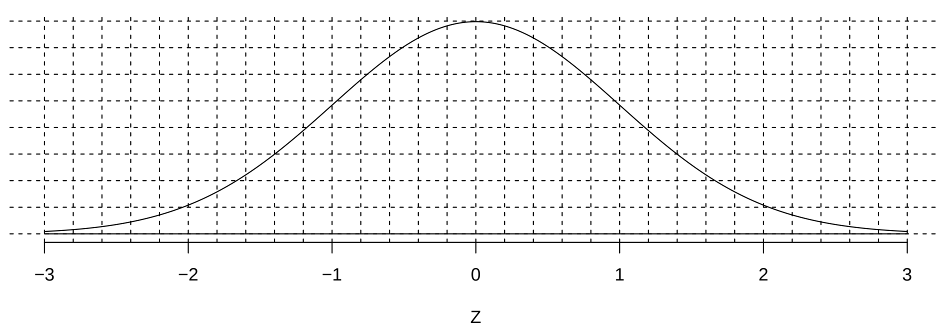
(a) Estimate $P(|Z| > 1.6)$ by shading and counting.
(b) Determine $P(|Z| > 1.6)$ by using the z-table.

21. **Problem**
The figure below shows the standard normal density. Each grid square represents 1% of probability.



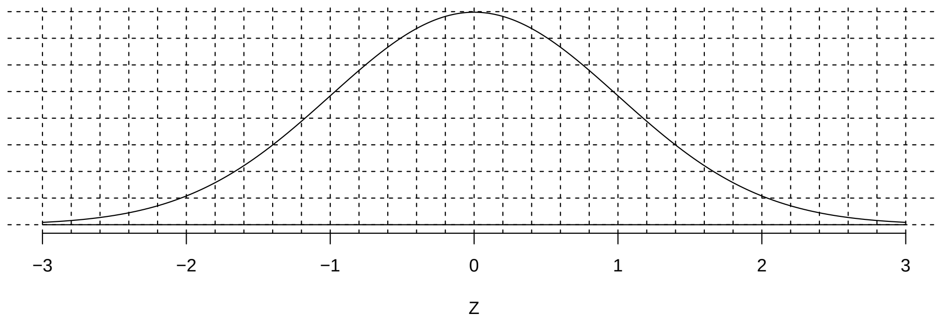
(a) Estimate z such that $P(Z > z) = 0.12$ by shading and counting.
(b) Determine z such that $P(Z > z) = 0.12$ by using the z-table.

22. **Problem**
The figure below shows the standard normal density. Each grid square represents 1% of probability.



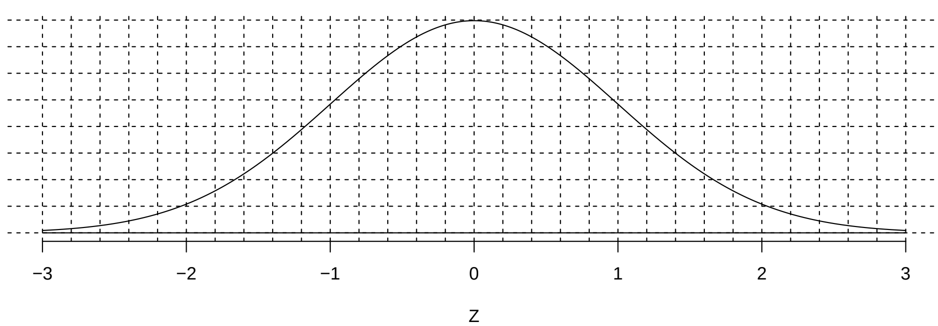
(a) Estimate z such that $P(Z < z) = 0.42$ by shading and counting.
(b) Determine z such that $P(Z < z) = 0.42$ by using the z-table.

23. **Problem**
The figure below shows the standard normal density. Each grid square represents 1% of probability.



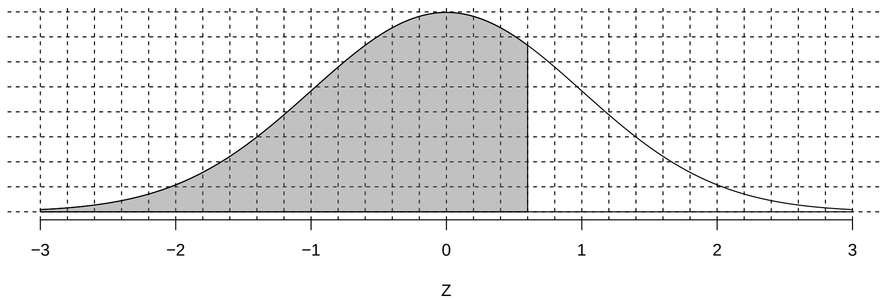
(a) Estimate $P(Z < -1)$ by shading and counting.
(b) Determine $P(Z < -1)$ by using the z-table.

24. **Problem**
The figure below shows the standard normal density. Each grid square represents 1% of probability.



(a) Estimate $P(|Z| < 0.6)$ by shading and counting.
(b) Determine $P(|Z| < 0.6)$ by using the z-table.

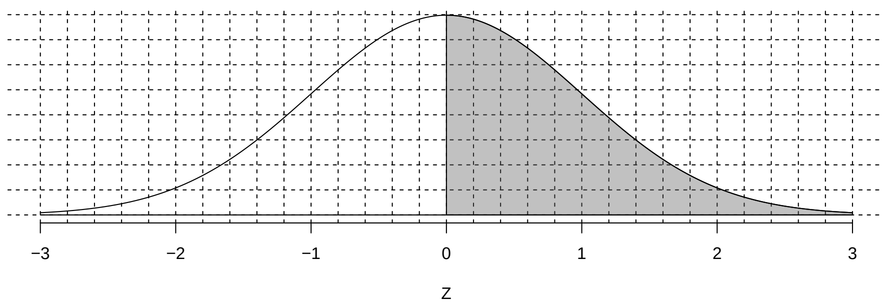
1. (a) The shaded region is shown below.



You should count about 73 shaded squares, giving a probability of about 0.73.

(b) The probability is 0.7257.

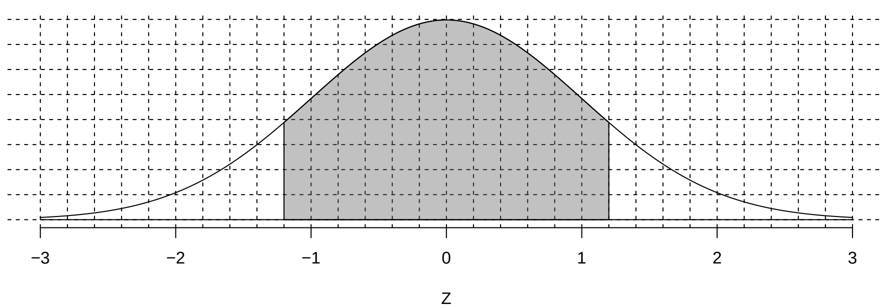
2. (a) The shaded region is shown below.



You should count about 50 shaded squares, giving a probability of about 0.5.

(b) The probability is 0.5.

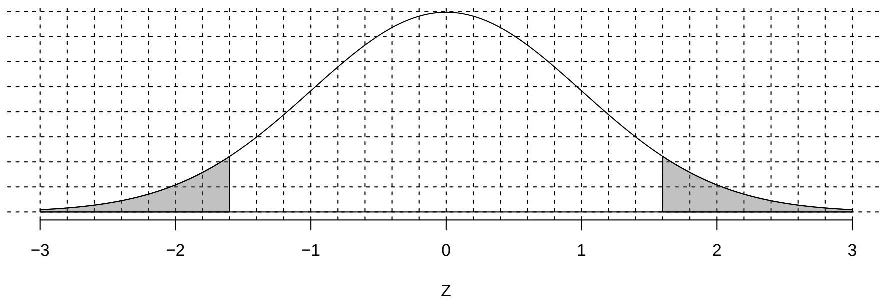
3. (a) The shaded region is shown below.



You should count about 77 shaded squares, giving a probability of about 0.77.

(b) The probability is 0.7699.

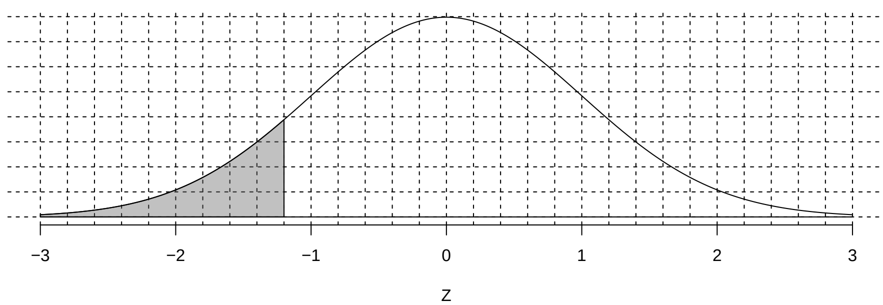
4. (a) The shaded regions are shown below.



You should count about 11 shaded squares, giving a probability of about 0.11.

(b) The probability is 0.1096.

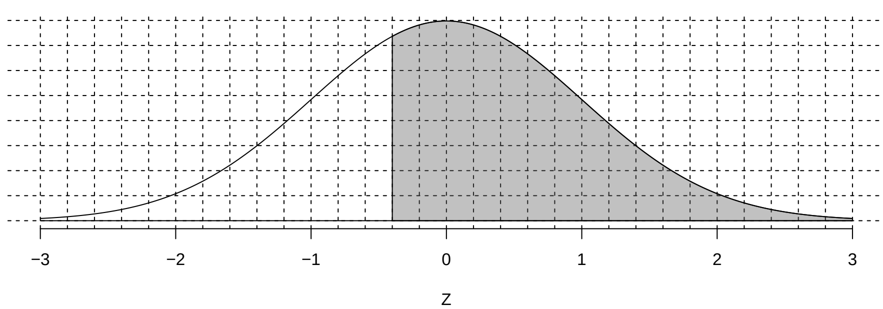
5. (a) The shaded region is shown below.



When you have shaded 12 squares, starting on the left, you should end around $z = -1.2$.

(b) $z \approx -1.17$

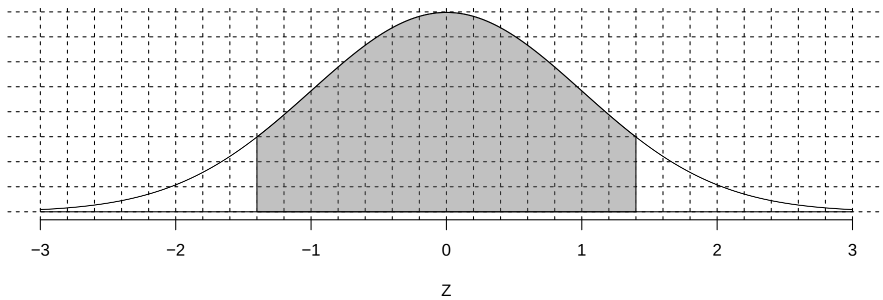
6. (a) The shaded region is shown below.



When you have shaded 66 squares, starting on the right, you should end around $z = -0.4$.

(b) $z = 0.41$

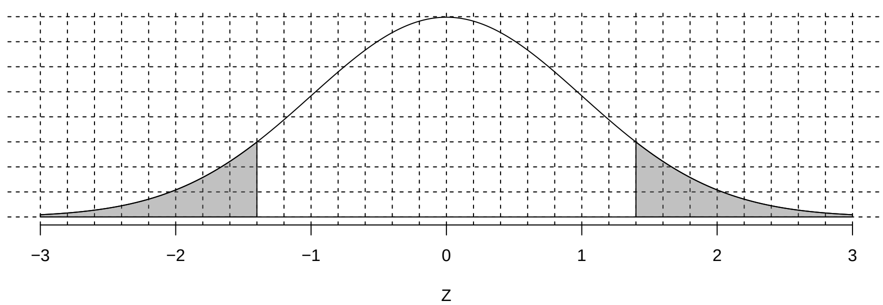
7. (a) The shaded region is shown below.



When you have shaded 84 squares, starting in the middle, you should end near $z = 1.4$.

(b) $z = 1.41$

8. (a) The shaded regions are shown below.



When you have shaded 16 squares, starting at both tails, you should end near $z = 1.4$. Really, you want to shade 8 squares starting from the left and also 8 squares starting from the right.

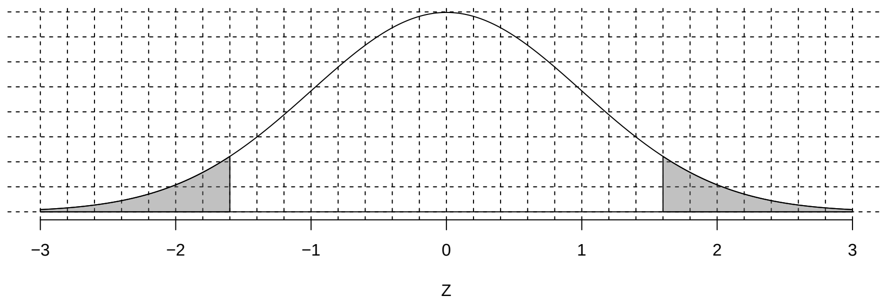
(b) Each tail has half the two-tail area. So each tail has an area of 0.08. We can find the z score with this left area...

$$z_{\text{left tail}} = -1.41$$

But, we want the positive value (the right tail's z boundary).

$$z = \boxed{1.41}$$

9. (a) The shaded regions are shown below.



When you have shaded 11 squares, starting at both tails, you should end near $z = 1.6$. Really, you want to shade 5.5 squares starting from the left and also 5.5 squares starting from the right.

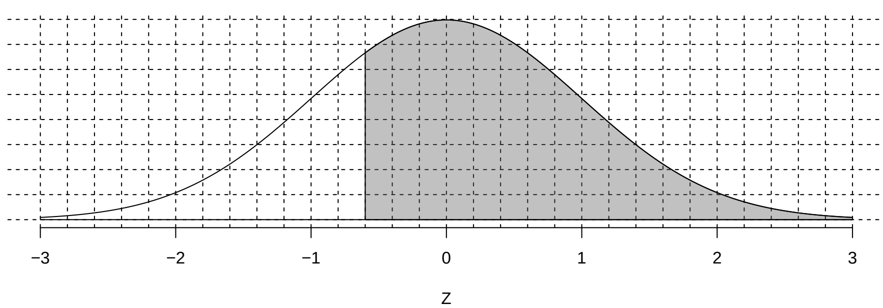
(b) Each tail has half the two-tail area. So each tail has an area of 0.055. We can find the z score with this left area...

$$z_{\text{left tail}} = -1.6$$

But, we want the positive value (the right tail's z boundary).

$$z = \boxed{1.6}$$

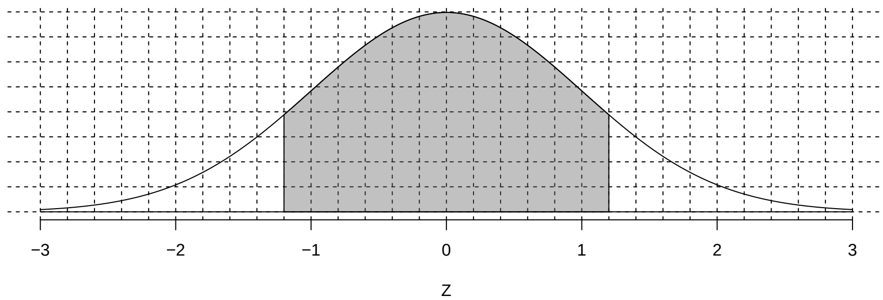
10. (a) The shaded region is shown below.



When you have shaded 73 squares, starting on the right, you should end around $z = -0.6$.

(b) $z = 0.61$

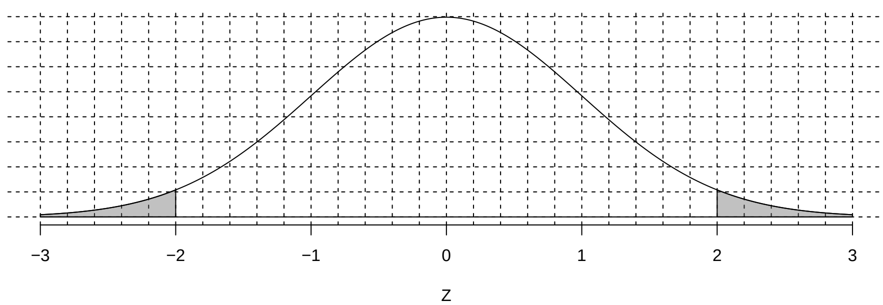
11. (a) The shaded region is shown below.



You should count about 77 shaded squares, giving a probability of about 0.77.

(b) The probability is 0.7699.

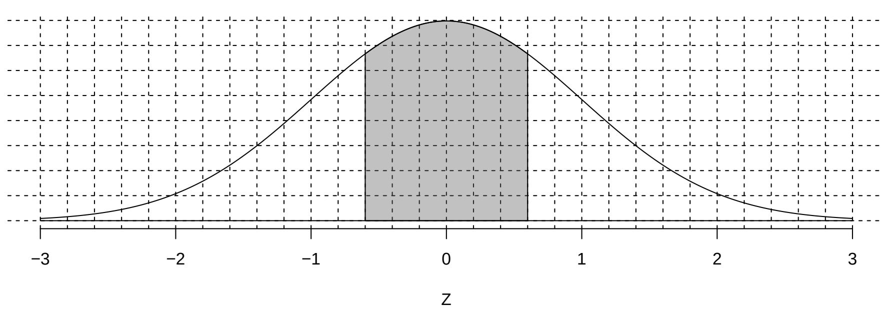
12. (a) The shaded regions are shown below.



You should count about 5 shaded squares, giving a probability of about 0.05.

(b) The probability is 0.0455.

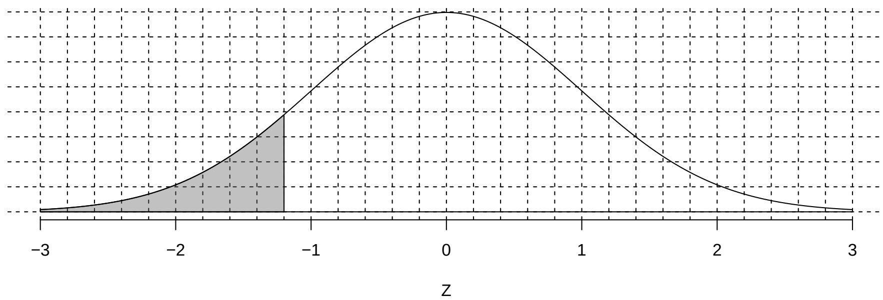
13. (a) The shaded region is shown below.



When you have shaded 45 squares, starting in the middle, you should end near $z = 0.6$.

(b) $z = 0.6$

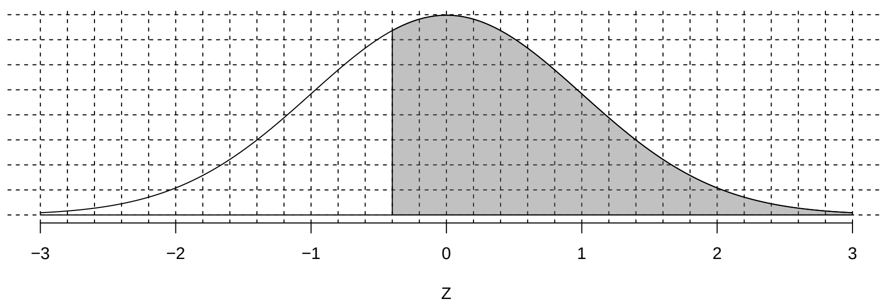
14. (a) The shaded region is shown below.



When you have shaded 12 squares, starting on the left, you should end around $z = -1.2$.

(b) $z \approx -1.17$

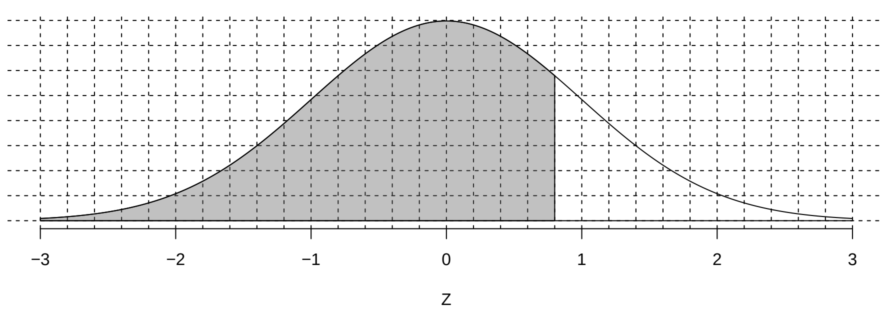
15. (a) The shaded region is shown below.



You should count about 66 shaded squares, giving a probability of about 0.66.

(b) The probability is 0.6554.

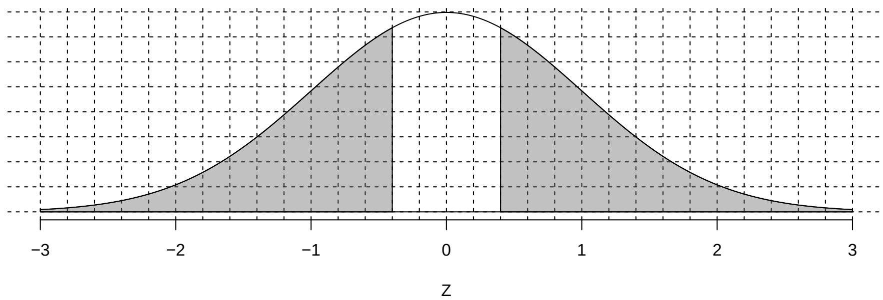
16. (a) The shaded region is shown below.



You should count about 79 shaded squares, giving a probability of about 0.79.

(b) The probability is 0.7881.

17. (a) The shaded regions are shown below.



When you have shaded 69 squares, starting at both tails, you should end near $z = 0.4$. Really, you want to shade 34.5 squares starting from the left and also 34.5 squares starting from the right.

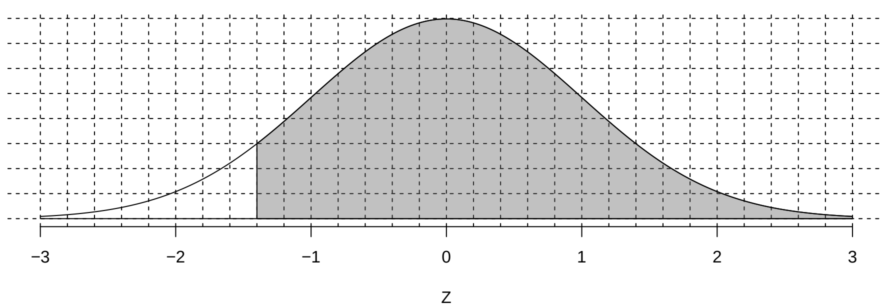
(b) Each tail has half the two-tail area. So each tail has an area of 0.345. We can find the z score with this left area...

$$z_{\text{left tail}} = -0.4$$

But, we want the positive value (the right tail's z boundary).

$$z = \boxed{0.4}$$

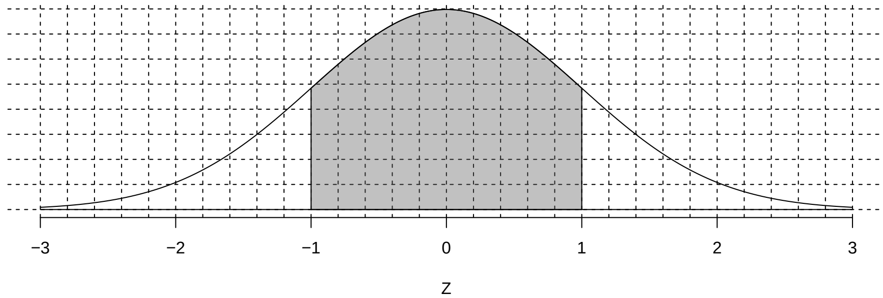
18. (a) The shaded region is shown below.



You should count about 92 shaded squares, giving a probability of about 0.92.

(b) The probability is 0.9192.

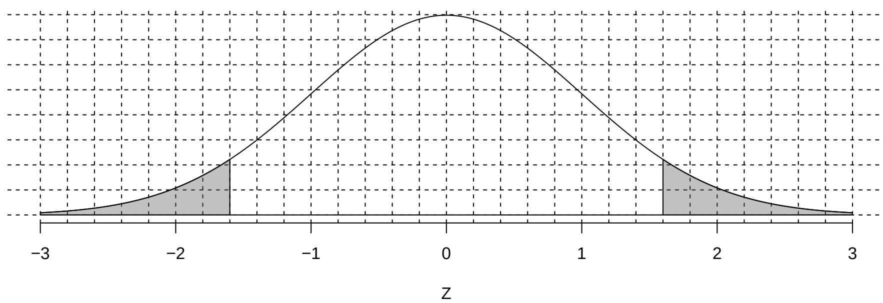
19. (a) The shaded region is shown below.



When you have shaded 68 squares, starting in the middle, you should end near $z = 1$.

(b) $z = 0.99$

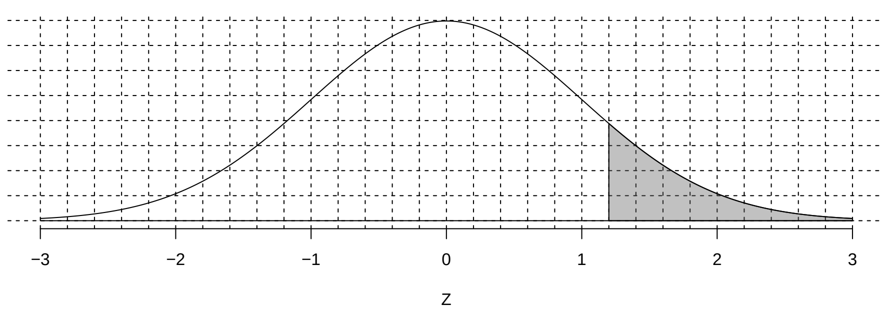
20. (a) The shaded regions are shown below.



You should count about 11 shaded squares, giving a probability of about 0.11.

(b) The probability is 0.1096.

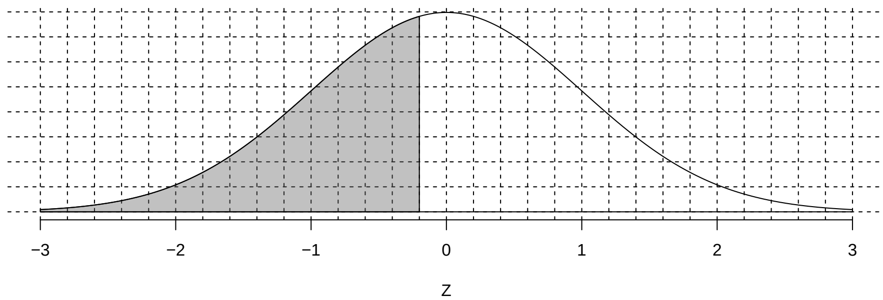
21. (a) The shaded region is shown below.



When you have shaded 12 squares, starting on the right, you should end around $z = 1.2$.

(b) $z = -1.17$

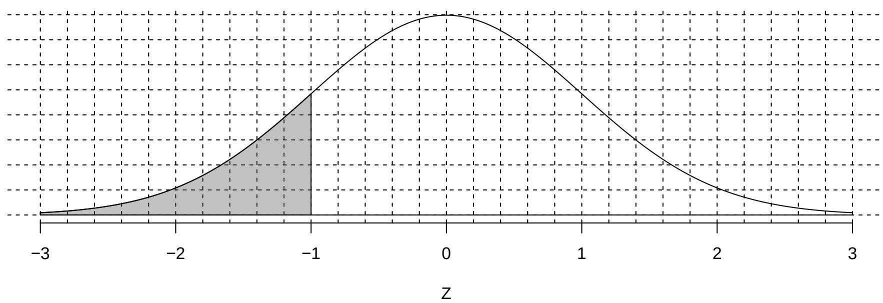
22. (a) The shaded region is shown below.



When you have shaded 42 squares, starting on the left, you should end around $z = -0.2$.

(b) $z \approx -0.2$

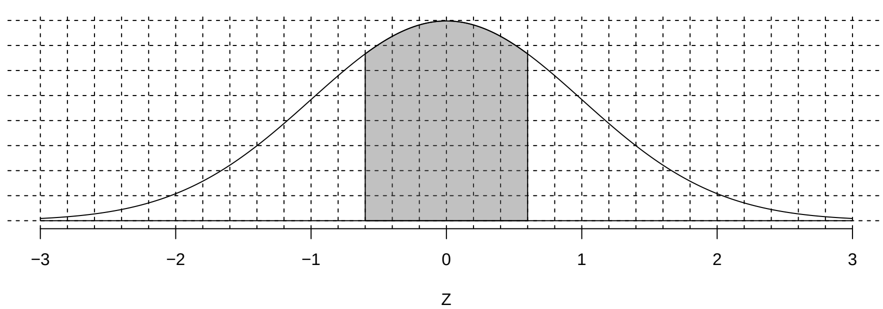
23. (a) The shaded region is shown below.



You should count about 16 shaded squares, giving a probability of about 0.16.

(b) The probability is 0.1587.

24. (a) The shaded region is shown below.



You should count about 45 shaded squares, giving a probability of about 0.45.

(b) The probability is 0.4515.