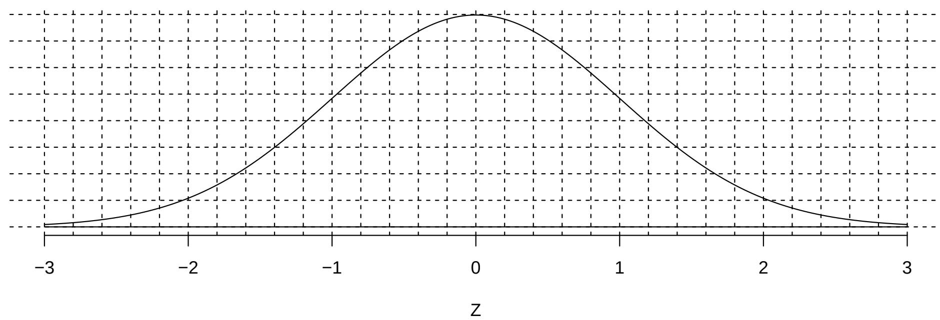
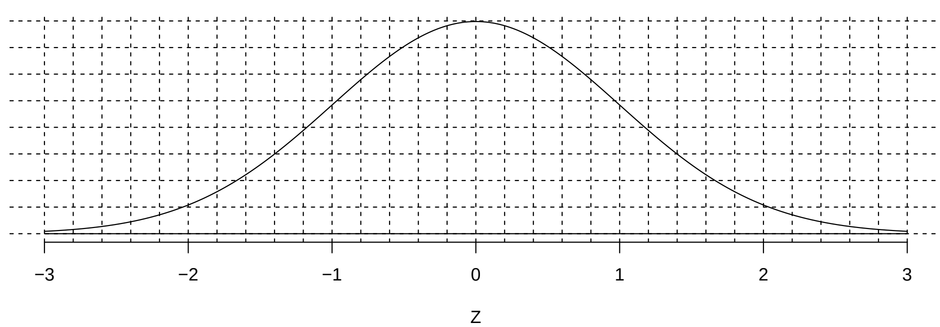
1. **Problem**
The figure below shows the standard normal density. Each grid square represents 1% of probability.



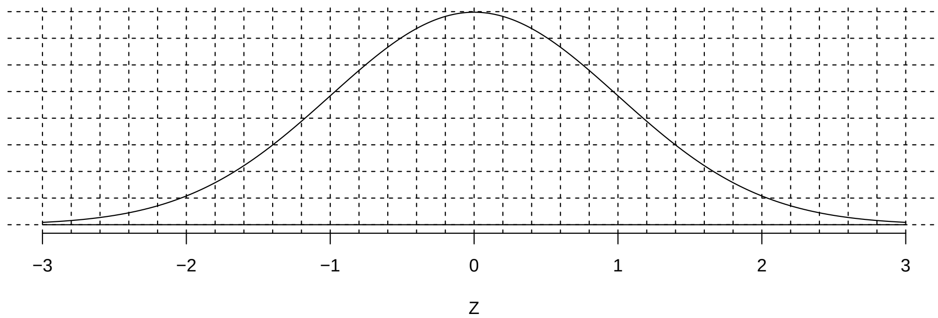
(a) Estimate $P(Z < 0.6)$ by shading and counting.
(b) Determine $P(Z < 0.6)$ by using the z-table.

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



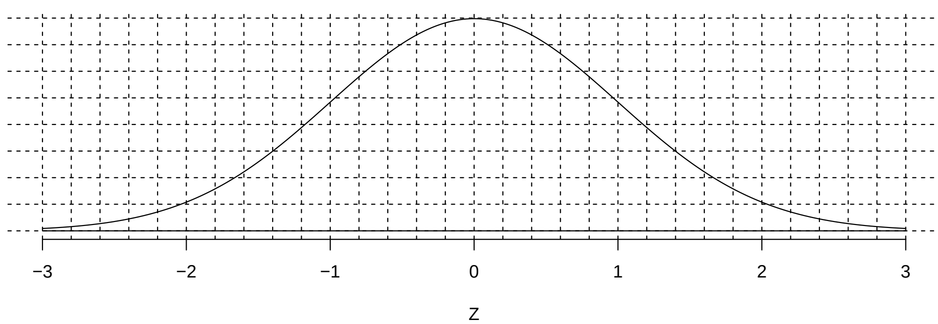
(a) Estimate $P(Z > 0)$ by shading and counting.
(b) Determine $P(Z > 0)$ by using the z-table.

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



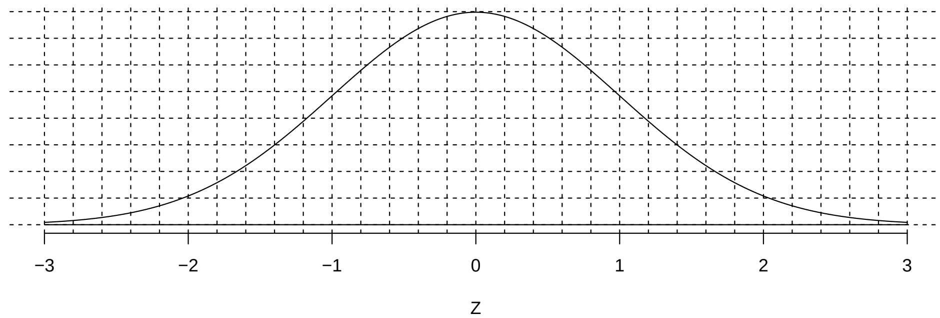
(a) Estimate $P(|Z| < 1.2)$ by shading and counting.
(b) Determine $P(|Z| < 1.2)$ by using the z-table.

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



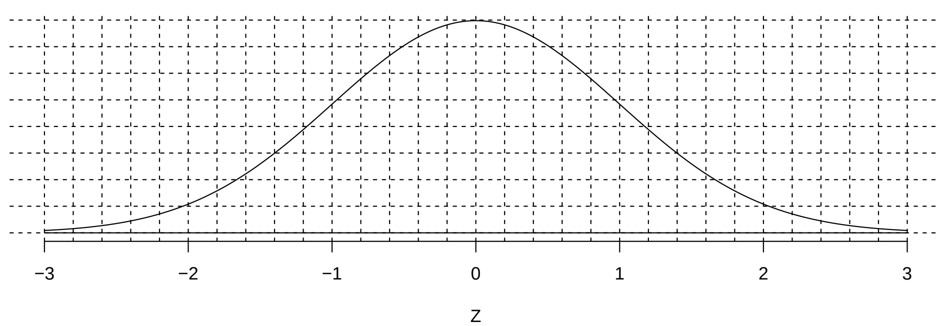
(a) Estimate $P(|Z| > 1.6)$ by shading and counting.
(b) Determine $P(|Z| > 1.6)$ by using the z-table.

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



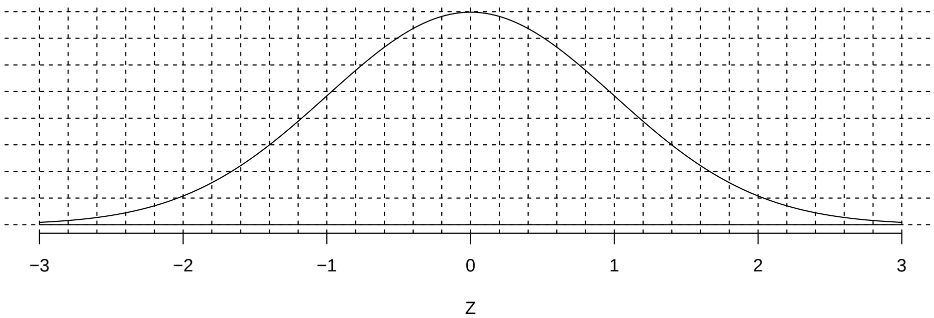
(a) Estimate z such that $P(Z < z) = 0.12$ by shading and counting.
(b) Determine z such that $P(Z < z) = 0.12$ by using the z-table.

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.

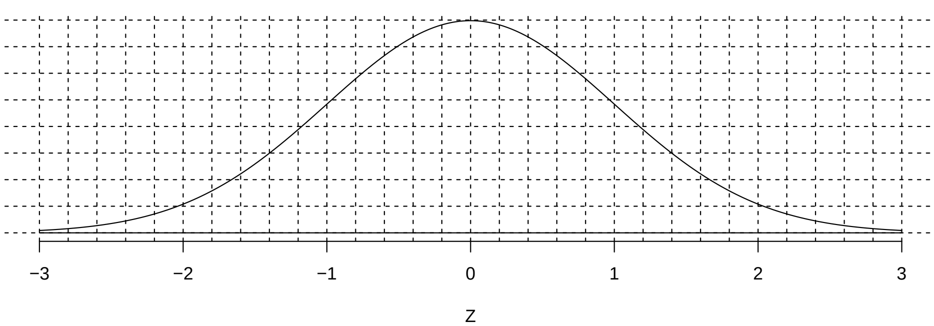
7. **Problem**
The figure below shows the standard normal density. Each grid square represents 1% of probability.



(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.

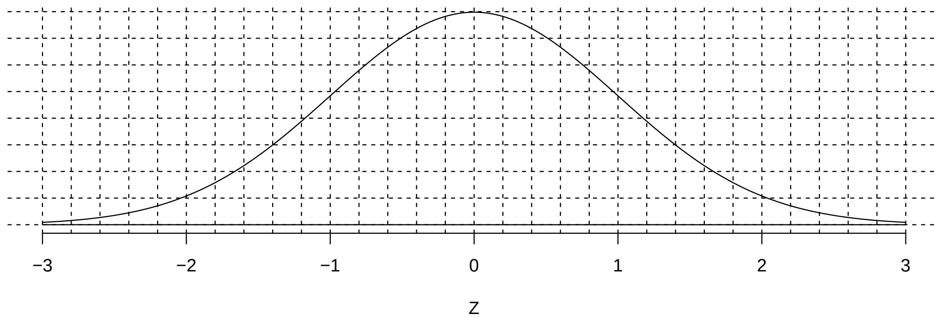
8. **Problem**
The figure below shows the standard normal density. Each grid square represents 1% of probability.



(a) Estimate z such that $P(|Z| > z) = 0.16$ by shading and counting.

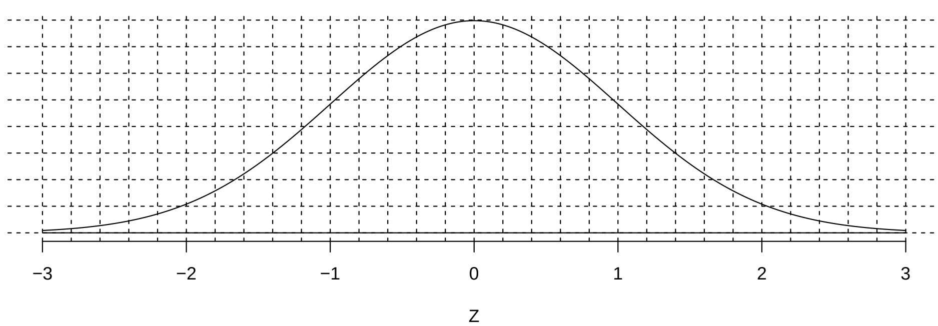
(b) Determine z such that $P(|Z| > z) = 0.16$ by using the z-table.

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



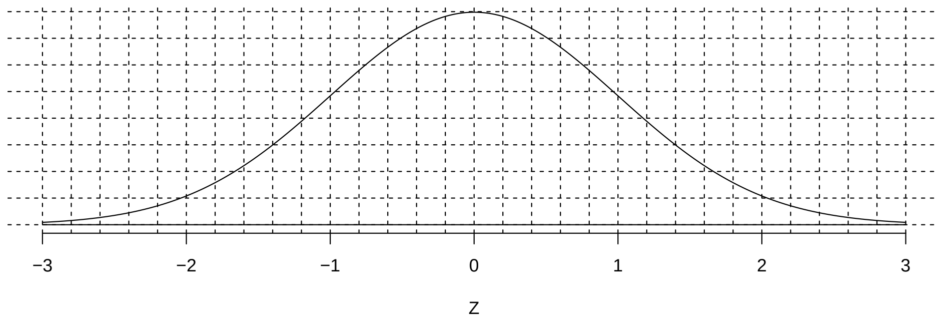
(a) Estimate $P(Z < 0.6)$ by shading and counting.
(b) Determine $P(Z < 0.6)$ by using the z-table.

10. **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.

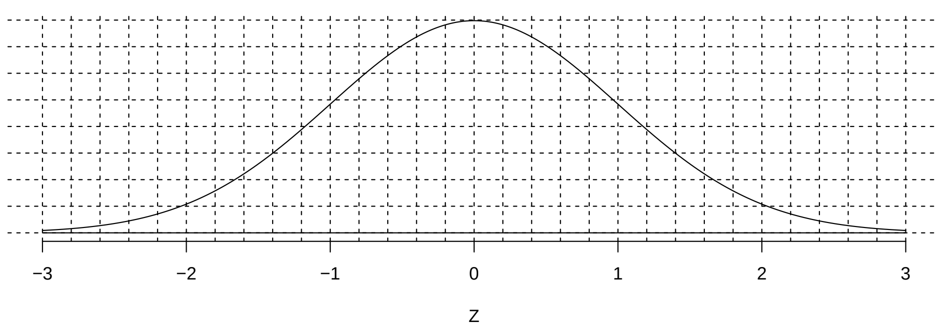
11. **Problem**
The figure below shows the standard normal density. Each grid square represents 1% of probability.



(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.

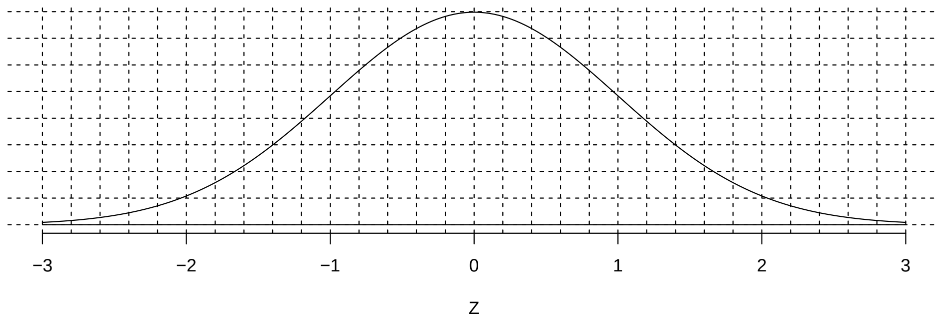
12. **Problem**
The figure below shows the standard normal density. Each grid square represents 1% of probability.



(a) Estimate $P(|Z| < 1.4)$ by shading and counting.

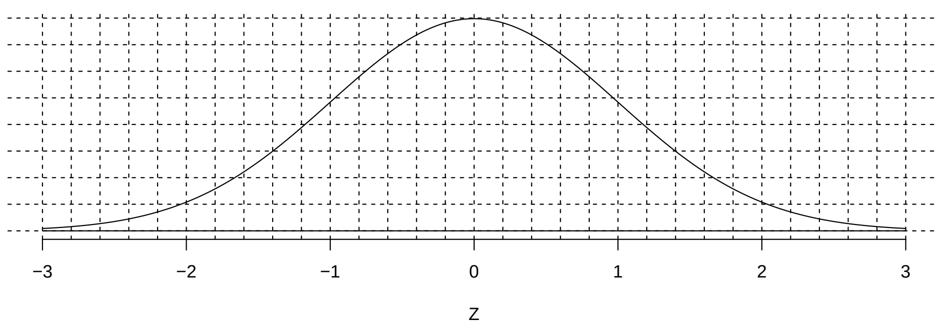
(b) Determine $P(|Z| < 1.4)$ by using the z-table.

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



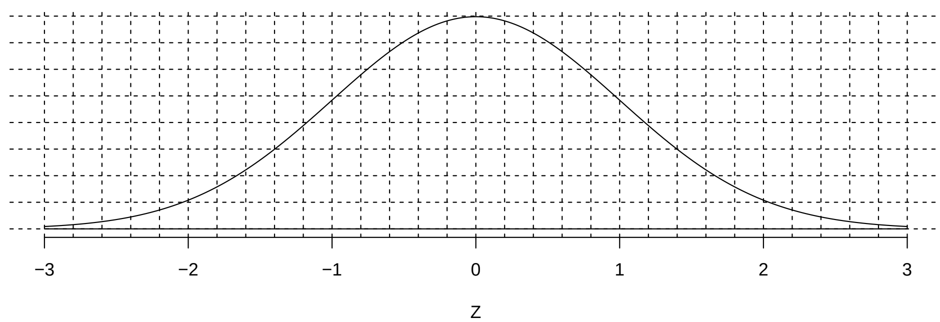
(a) Estimate $P(Z > -0.6)$ by shading and counting.
(b) Determine $P(Z > -0.6)$ by using the z-table.

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



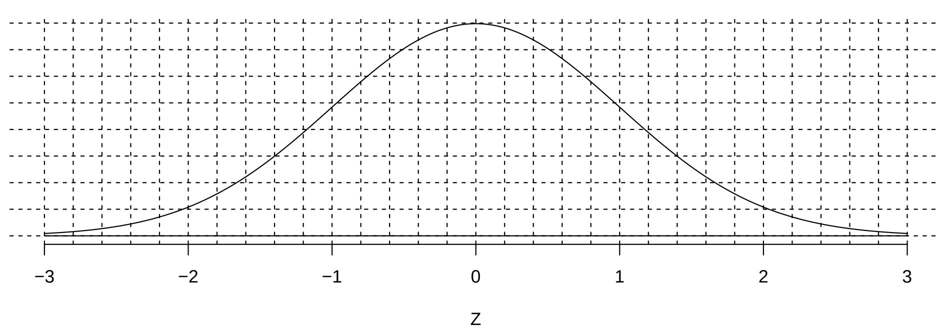
(a) Estimate z such that $P(Z > z) = 0.88$ by shading and counting.
(b) Determine z such that $P(Z > z) = 0.88$ by using the z-table.

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



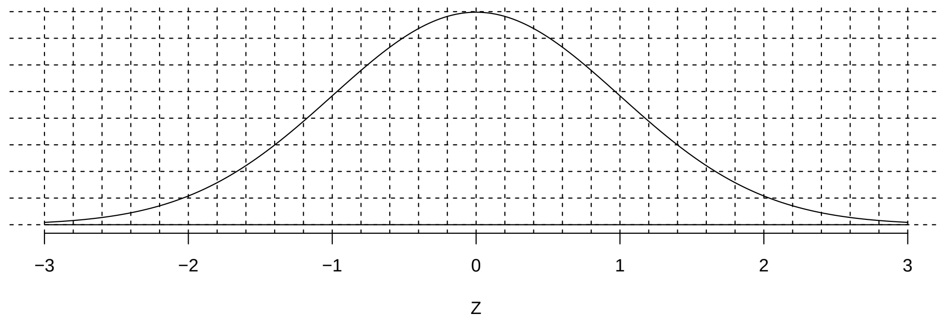
(a) Estimate z such that $P(|Z| > z) = 0.42$ by shading and counting.
(b) Determine z such that $P(|Z| > z) = 0.42$ by using the z-table.

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



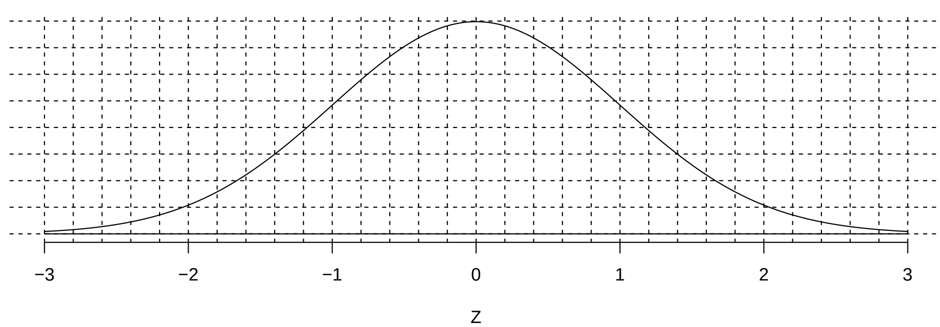
(a) Estimate z such that $P(|Z| < z) = 0.77$ by shading and counting.
(b) Determine z such that $P(|Z| < z) = 0.77$ by using the z-table.

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



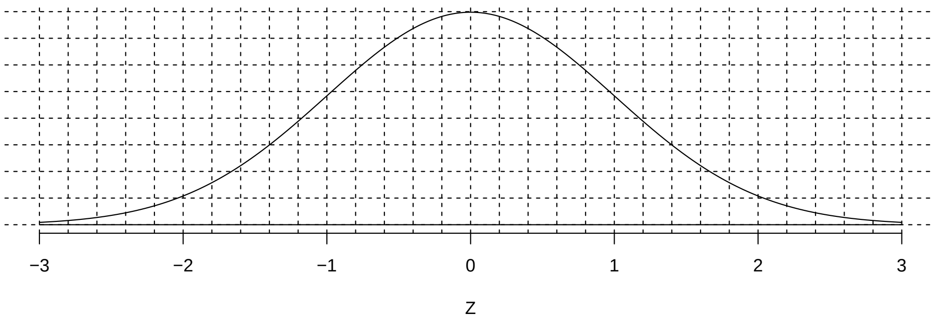
(a) Estimate z such that $P(|Z| < z) = 0.16$ by shading and counting.
(b) Determine z such that $P(|Z| < z) = 0.16$ by using the z-table.

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



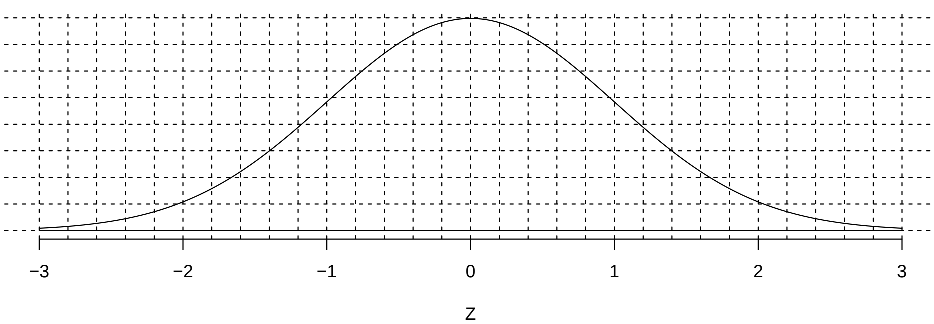
(a) Estimate $P(|Z| < 0.2)$ by shading and counting.
(b) Determine $P(|Z| < 0.2)$ by using the z-table.

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



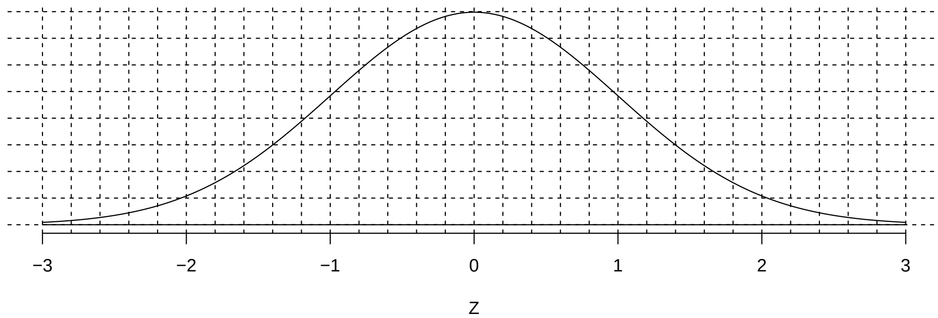
(a) Estimate $P(Z < 0.6)$ by shading and counting.
(b) Determine $P(Z < 0.6)$ by using the z-table.

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



(a) Estimate z such that $P(Z > z) = 0.21$ by shading and counting.
(b) Determine z such that $P(Z > z) = 0.21$ by using the z-table.

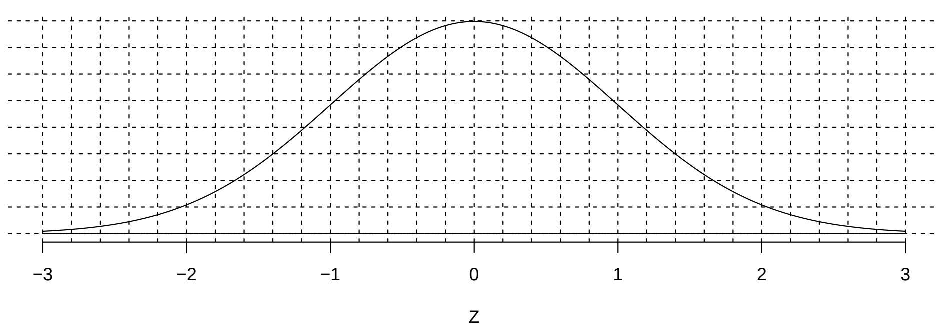
21. **Problem**
The figure below shows the standard normal density. Each grid square represents 1% of probability.



(a) Estimate $P(|Z| > 2)$ by shading and counting.

(b) Determine $P(|Z| > 2)$ by using the z-table.

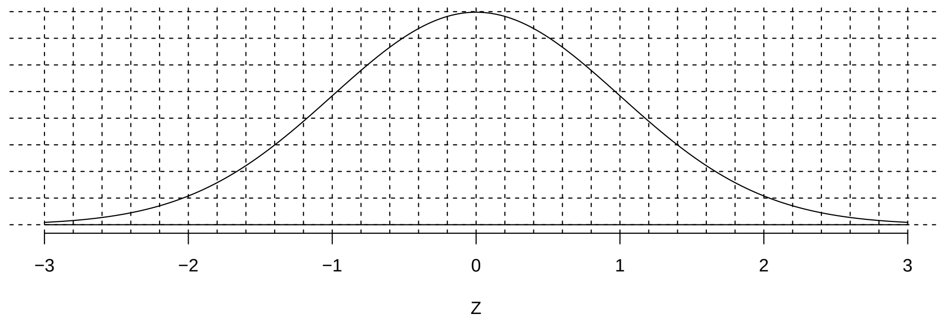
22. **Problem**
The figure below shows the standard normal density. Each grid square represents 1% of probability.



(a) Estimate z such that $P(|Z| > z) = 0.32$ by shading and counting.

(b) Determine z such that $P(|Z| > z) = 0.32$ by using the z-table.

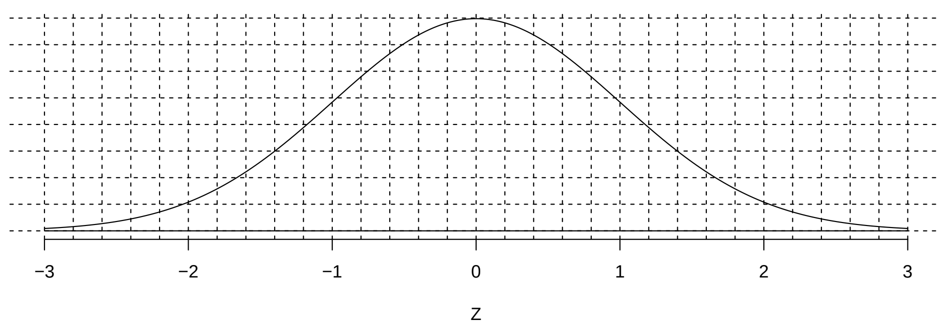
23. **Problem**
The figure below shows the standard normal density. Each grid square represents 1% of probability.



(a) Estimate $P(Z > -1)$ by shading and counting.

(b) Determine $P(Z > -1)$ by using the z-table.

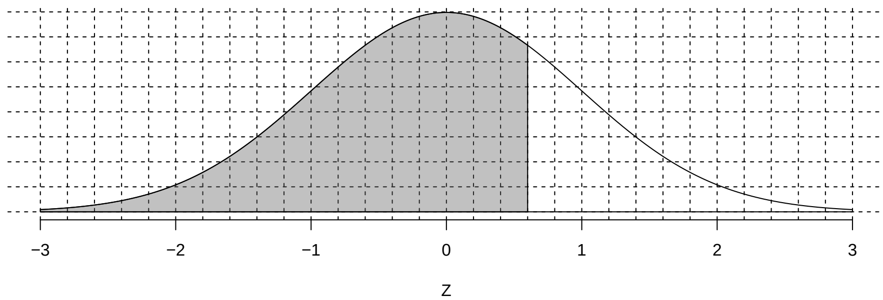
24. **Problem**
The figure below shows the standard normal density. Each grid square represents 1% of probability.



(a) Estimate z such that $P(Z < z) = 0.27$ by shading and counting.

(b) Determine z such that $P(Z < z) = 0.27$ by using the z-table.

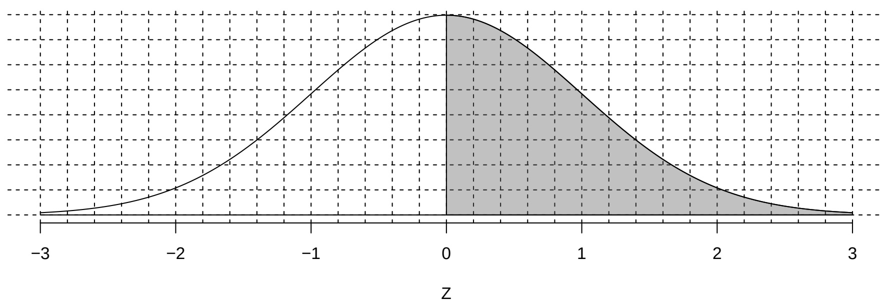
1. (a) The shaded region is shown below.



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

(b) The probability is 0.7257.

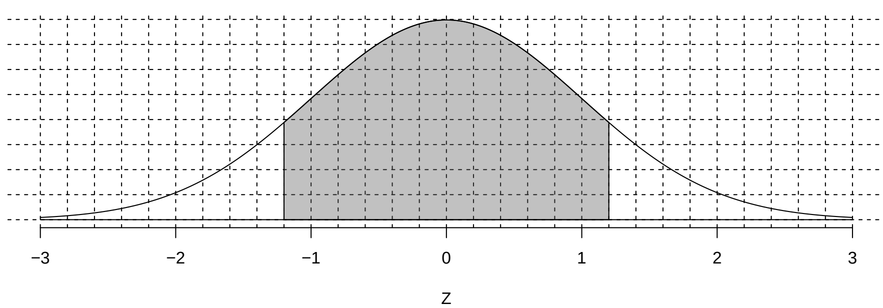
2. (a) The shaded region is shown below.



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

(b) The probability is 0.5.

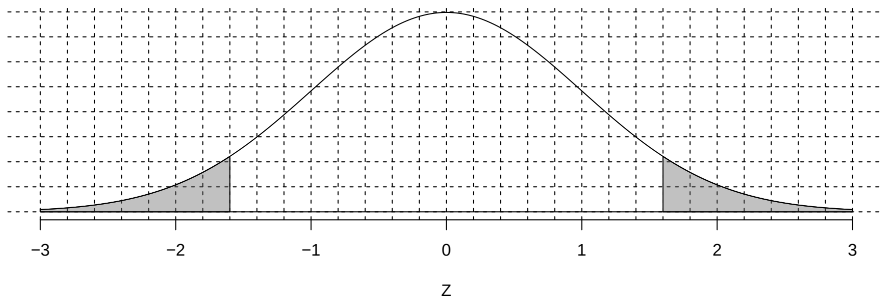
3. (a) The shaded region is shown below.



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

(b) The probability is 0.7699.

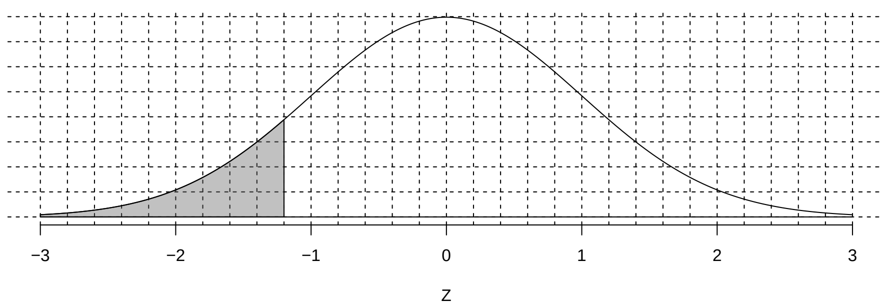
4. (a) The shaded regions are shown below.



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

(b) The probability is 0.1096.

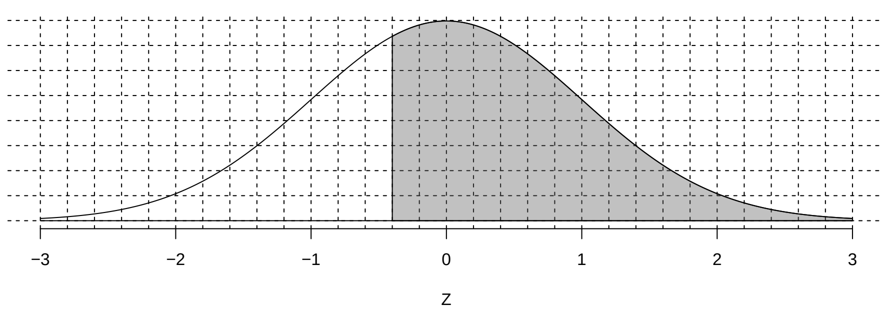
5. (a) The shaded region is shown below.



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

(b) $z \approx -1.17$

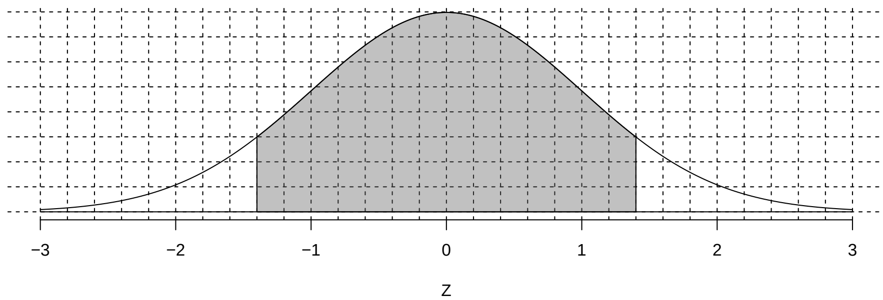
6. (a) The shaded region is shown below.



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

(b) $z = 0.41$

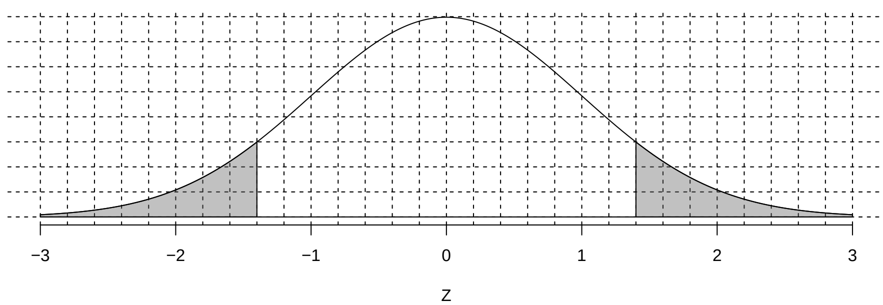
7. (a) The shaded region is shown below.



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

(b) $z = 0.99$

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.

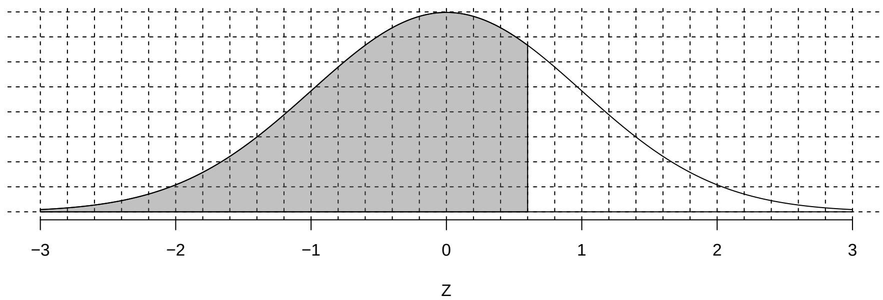
(b) Each tail has half the two-tail area. So each tail has an area of 0.08. We can find the z score with this left area...

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

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

$$z = \boxed{1.41}$$

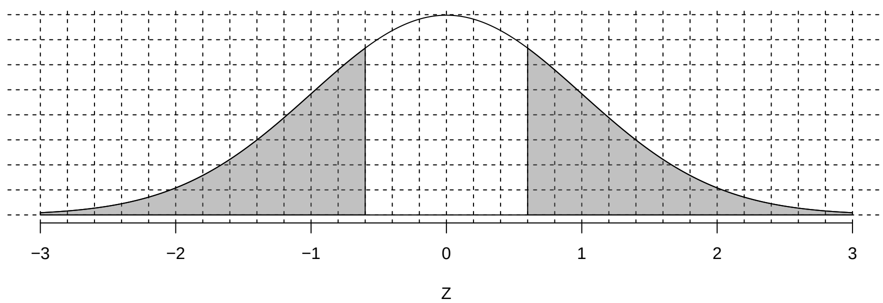
9. (a) The shaded region is shown below.



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

(b) The probability is 0.7257.

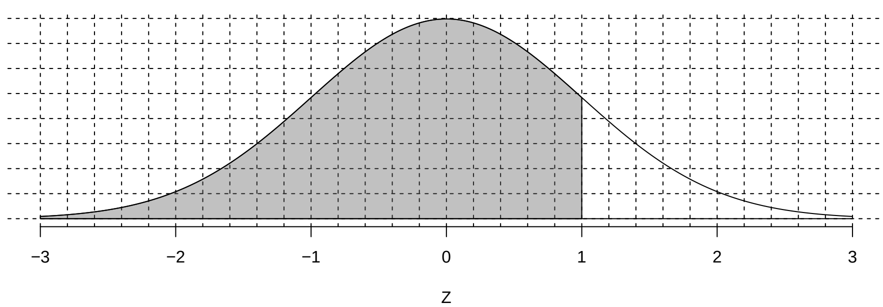
10. (a) The shaded regions are shown below.



You should count about 55 shaded squares, giving a probability of about 0.55.

(b) The probability is 0.5485.

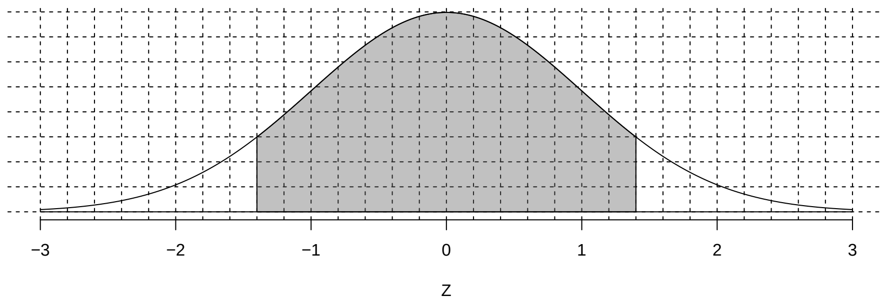
11. (a) The shaded region is shown below.



When you have shaded 84 squares, starting on the left, you should end around $z = 1$.

(b) $z \approx 0.99$

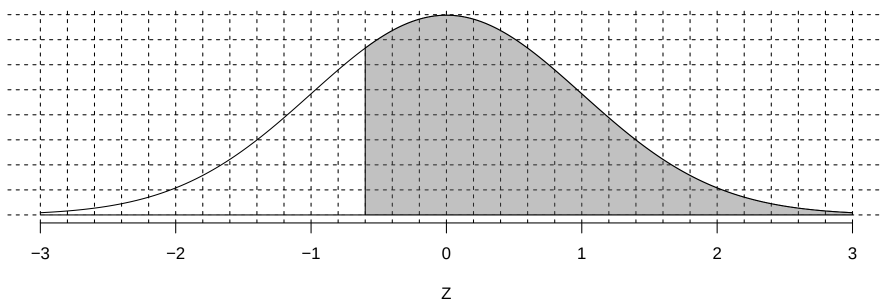
12. (a) The shaded region is shown below.



You should count about 84 shaded squares, giving a probability of about 0.84.

(b) The probability is 0.8385.

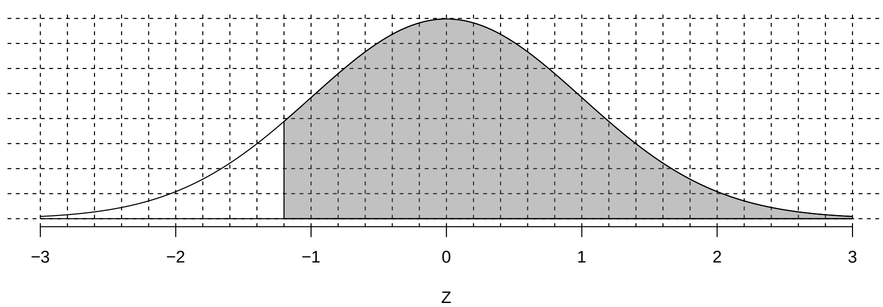
13. (a) The shaded region is shown below.



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

(b) The probability is 0.7257.

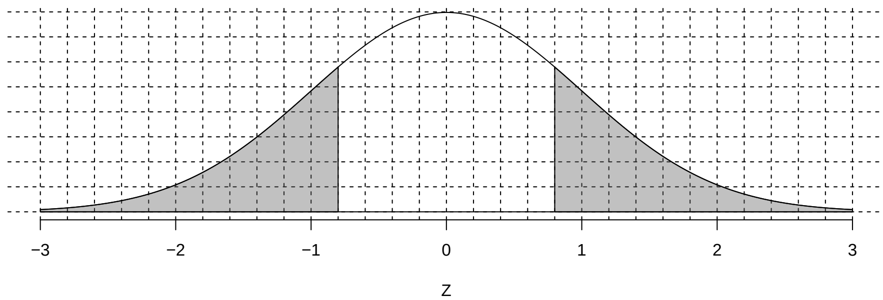
14. (a) The shaded region is shown below.



When you have shaded 88 squares, starting on the right, you should end around $z = -1.2$.

(b) $z = 1.17$

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



When you have shaded 42 squares, starting at both tails, you should end near $z = 0.8$. Really, you want to shade 21 squares starting from the left and also 21 squares starting from the right.

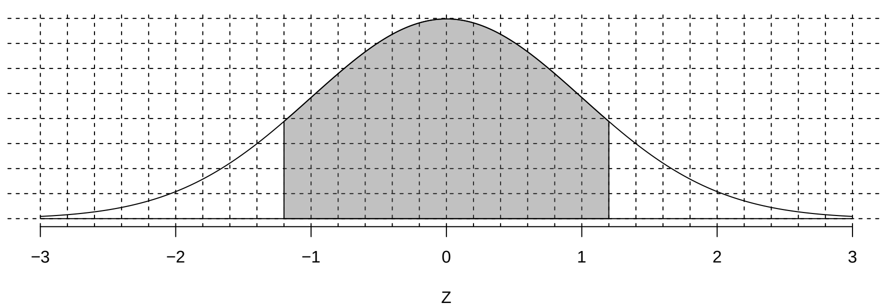
(b) Each tail has half the two-tail area. So each tail has an area of 0.21. We can find the z score with this left area...

$$z_{\text{left tail}} = -0.81$$

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

$$z = \boxed{0.81}$$

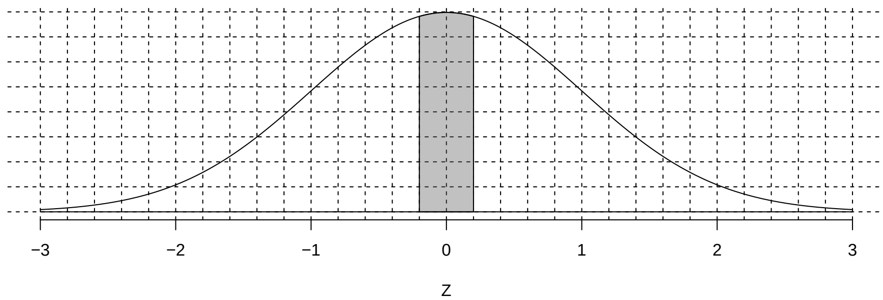
16. (a) The shaded region is shown below.



When you have shaded 77 squares, starting in the middle, you should end near $z = 1.2$.

(b) $z = 0.74$

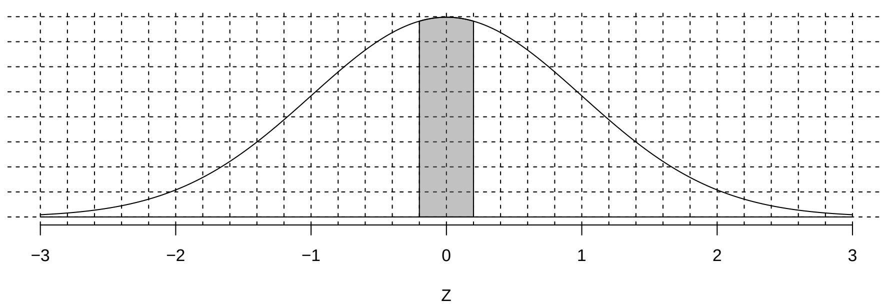
17. (a) The shaded region is shown below.



When you have shaded 16 squares, starting in the middle, you should end near $z = 0.2$.

(b) $z = -0.99$

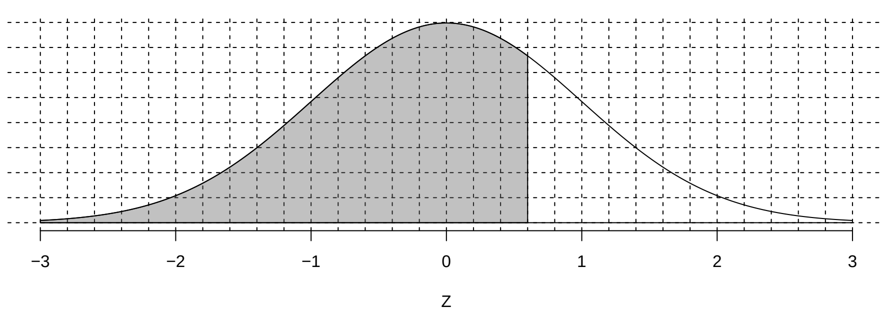
18. (a) The shaded region is shown below.



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

(b) The probability is 0.1585.

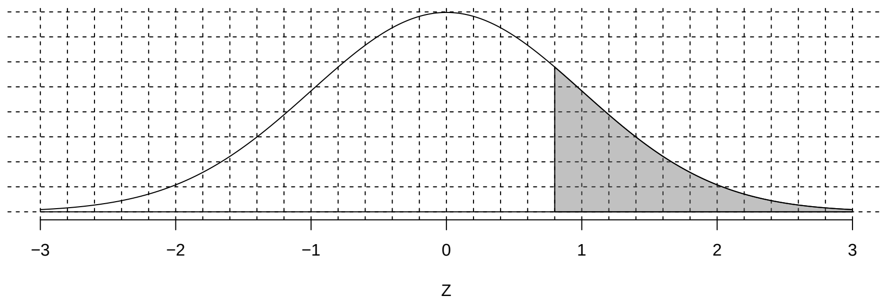
19. (a) The shaded region is shown below.



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

(b) The probability is 0.7257.

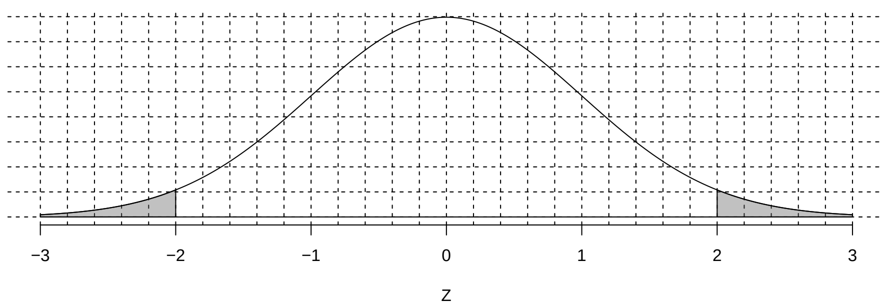
20. (a) The shaded region is shown below.



When you have shaded 21 squares, starting on the right, you should end around $z = 0.8$.

(b) $z = -0.81$

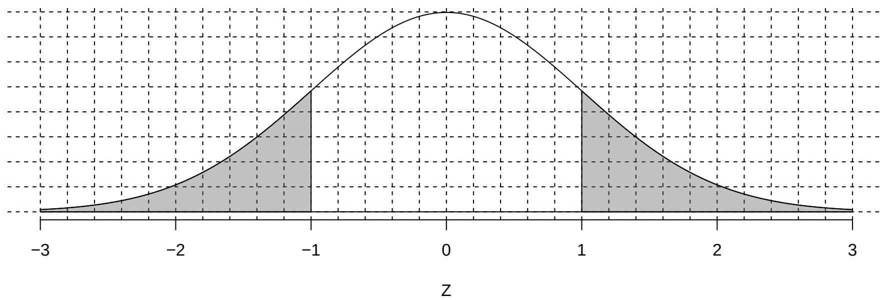
21. (a) The shaded regions are shown below.



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

(b) The probability is 0.0455.

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



When you have shaded 32 squares, starting at both tails, you should end near $z = 1$. Really, you want to shade 16 squares starting from the left and also 16 squares starting from the right.

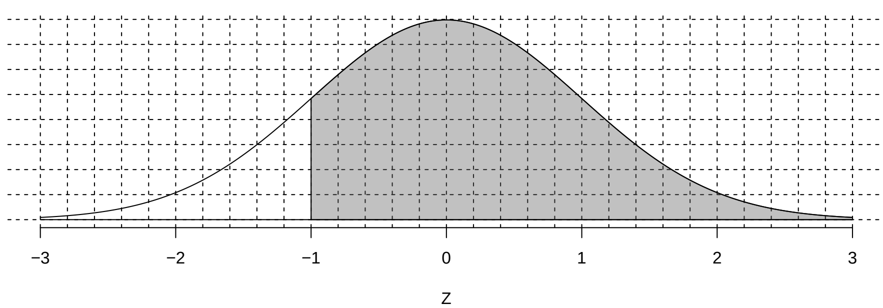
(b) Each tail has half the two-tail area. So each tail has an area of 0.16. We can find the z score with this left area...

$$z_{\text{left tail}} = -0.99$$

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

$$z = \boxed{0.99}$$

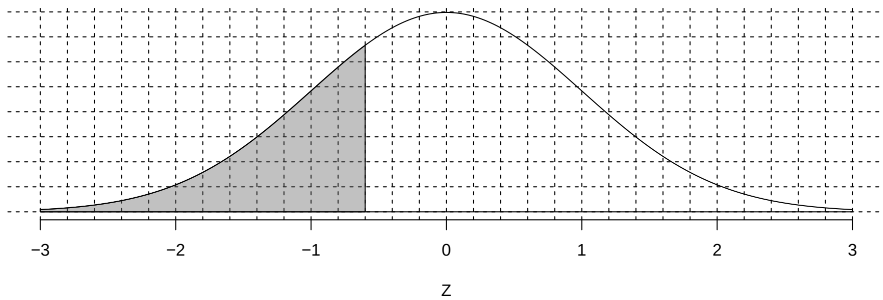
23. (a) The shaded region is shown below.



You should count about 84 shaded squares, giving a probability of about 0.84.

(b) The probability is 0.8413.

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



When you have shaded 27 squares, starting on the left, you should end around $z = -0.6$.

(b) $z \approx -0.61$