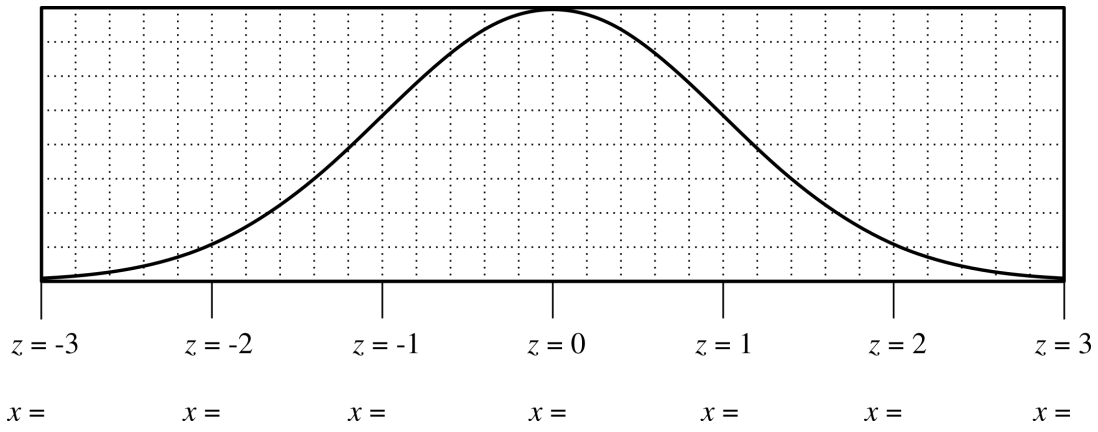
1: Let random variable X be normally distributed with mean 50 and standard deviation 8. In other words, let $X \sim \mathcal{N}\left(50,\ 8\right)$. You want to determine $P(46 < X < 62)$.

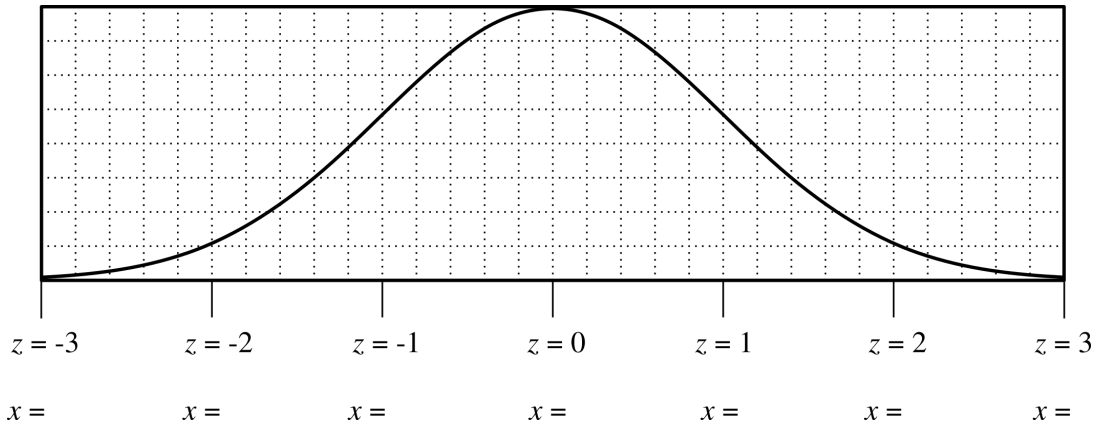


a: Determine the x values at the tick marks.

b: Shade the appropriate region.

c: Find the probability $P(46 < X < 62)$.

2: Let $X \sim \mathcal{N}\left(65,\ 0.2\right)$. You want to determine $P\left(|X - 65| < 0.3\right)$.

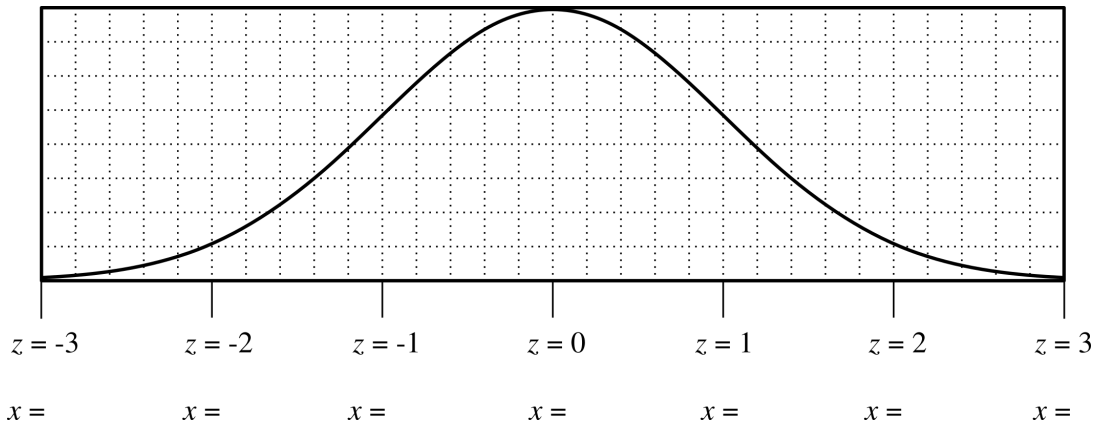


a: Determine the x values at the tick marks.

b: Shade the appropriate region.

c: Find the probability $P(|X - 65| < 0.3)$.

3: Let $X \sim \mathcal{N}\left(100,\ 5\right)$. You want to determine $P\left(|X - 100| > 6\right)$.

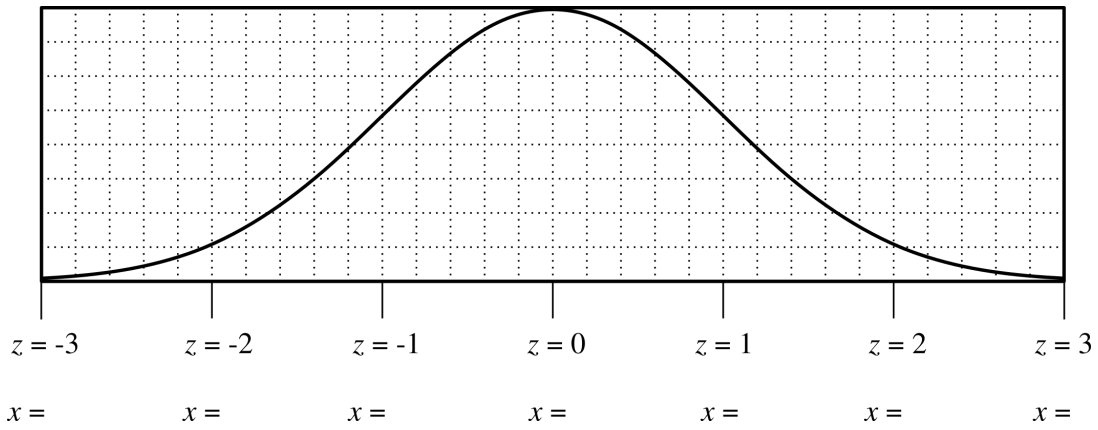


a: Determine the x values at the tick marks.

b: Shade the appropriate region.

c: Find the probability $P\left(|X - 100| > 6\right)$.

4: Let $X \sim \mathcal{N}\left(0,\ 2.2\right)$. You want to determine $P(X > -3.96)$.



a: Determine the x values at the tick marks.

b: Shade the appropriate region.

c: Find the probability $P(X > -3.96)$.

5: Let $X \sim \mathcal{N}\left(14,\ 3\right)$. Determine x_0 such that $P(X < x_0) = 0.68$.

6: Let $X \sim \mathcal{N}\left(2300,\ 250\right)$. Determine x_1 such that $P(X > x_1) = 0.86$.

7: Let $X \sim \mathcal{N}\left(3,\ 0.1\right)$. Determine r_0 such that $P\left(|X - 3| < r_0\right) = 0.89$.

8: Let $X \sim \mathcal{N}\left(85,\ 5\right)$. Determine r_1 such that $P\left(|X - 85| > r_1\right) = 0.23$.

9: Let $X \sim \mathcal{N}\left(100,\ \sigma\right)$. If $P(X < 108) = 0.9452$, then what is σ?

10: Let $X \sim \mathcal{N}\left(\mu,\ 20\right)$. If $P(X < 100) = 0.8413$, then what is μ?

11: Let $X \sim \mathcal{N}\left(20,\ 20\right)$. Determine $P(10 < X < 20)$.

12: Let $X \sim \mathcal{N}\left(20,\ 20\right)$. Determine x_0 such that $P(X > x_0) = 0.67$.