



It's time to standardize. We'll give you a distribution and value, and you have to tell us what the standard score is.

1. $N(10, 4)$, value 6

$$\begin{aligned} z &= \frac{x - \mu}{\sigma} \\ &= \frac{6 - 10}{2} \\ &= -2 \end{aligned}$$

2. $N(6.3, 9)$, value 0.3

$$\begin{aligned} z &= \frac{x - \mu}{\sigma} \\ &= \frac{0.3 - 6.3}{3} \\ &= -2 \end{aligned}$$

3. $N(2, 4)$. If the standard score is 0.5, what's the value?

This is the reverse of previous problems. We're given the standard score, and we have to find the original value. We can do this by substituting in the values we know, and finding x .

$$\begin{aligned} z &= \frac{x - \mu}{\sigma} \\ 0.5 &= \frac{x - 2}{2} \\ 0.5 \times 2 &= x - 2 \\ x &= 1 + 2 \\ &= 3 \end{aligned}$$

4. The standard score of value 20 is 2. If the variance is 16, what's the mean?

This is a similar problem to question 3. We have to substitute in the values we know to find μ .

$$\begin{aligned} z &= \frac{x - \mu}{\sigma} \\ 2 &= \frac{20 - \mu}{4} \\ 2 \times 4 &= 20 - \mu \\ \mu &= 20 - 8 \\ &= 12 \end{aligned}$$