$$z_\alpha = \Phi^{-1}(0.95) = \boxed{1.6449}$$

```
InverseCDF[NormalDistribution[0, 1], 0.95]
```

$$p = P(Z > 1.5583) = 1 - \Phi(1.5583) \approx 0.0596$$

```
1-CDF[NormalDistribution[0, 1], 1.5583]
```

Or
Z > 1.5583

You're working with a **hypergeometric distribution**, and you've written the PMF correctly:

$$P(X = x) = \frac{\binom{26}{x} \cdot \binom{22}{36-x}}{\binom{48}{36}}$$

This describes drawing 36 items from a population of 48, where:

- 26 are "successes" (e.g., red balls),
- 22 are "failures" (non-red balls),
- X is the number of successes drawn.

✅ Step 2: Probability of At Least 3 Successes

To compute:

$$P(X \geq 3) = 1 - P(X < 3) = 1 - [P(X = 0) + P(X = 1) + P(X = 2)]$$

In WolframAlpha:

wolfram   Copy   Edit

```
1 - CDF[HypergeometricDistribution[26, 22, 36], 2]
```

1 - CDF[HypergeometricDistribution[26, 22, 36], 2]

Goal	**Input**
Define distribution	HypergeometricDistribution[26, 22, 36]
Exact probability	PDF[HypergeometricDistribution[26, 22, 36], x]
Cumulative probability	CDF[HypergeometricDistribution[26, 22, 36], x]
At least k successes	1 - CDF[HypergeometricDistribution[26, 22, 36], k - 1]
Plot	Plot[PDF[HypergeometricDistribution[26, 22, 36], x], {x, 0, 26}]