Exhibit A: Plaintiffs

Workers in the exhibit A claim that they were fired and discriminated against on the basis of age. Data that supports this claim:

	Terminated Employees	Active Employees
Mean age	44	33
St.Deviation	6.25	8
Variance	39.12	64

The mean age of terminated employees is significantly higher than the mean age of the active employees in the firm, which is evidence that employees were discriminated against on the basis of age.

We made a hypothesis testing to statistically prove that the employees were discriminated against.

$H0: \mu T = \mu A$

$Ha: \mu T > \mu A$

Null hypothesis: Mean age of terminated employees equals to Mean age of active employees

Alternative hypothesis: Mean age of terminated employees is greater than the Mean age of active employees.

Alpha-value = 0.05

z value:	3.317089382
Critical value:	1.644853627
	3.317 > 1.645
	Reject H0.

We chose z-test for multiple population mean testing, as the standard deviation is known and sample number is greater than 30.
As the calculated z-value is greater than the critical value, it can be concluded statistically there is significant evidence that the mean age of terminated workers is greater than the mean age of active workers, and the terminated employees were discriminated against on the basis of age.

Exhibit B: Defendants

Company management stated that they used random sampling to choose 24 workers and they were not discriminated against on the basis of age.

Total 40+ years (T and A):	30
Total T and A:	55
Total proportion 40+ (T and A):	0.545454545
Total T:	24
Total 40+ years T:	17
Proportion 40+ T:	0.708333333

Out of the total 55 workers, including both those that were terminated and those that remain active, 30 of them were 40 years old or older. This proportion (30/55; approximately 0.55) would be the expected proportion of workers 40 years and older to be terminated in the random sample of 24 workers, if the sample truly was random. However, the observed sample proportion is much larger, at about 0.71, as 17 of the 24 terminated employees were 40 years and older.

$H_0: p = 0.55$

$H_a: p > 0.55$

Null hypothesis: The proportion of workers 40 and older that would be terminated is equal to 0.55.
Alternative hypothesis: The proportion of workers 40 and older that would be terminated is greater than 0.55.

z value =	1.602515384
Critical value (for a = 0.05) =	1.645
	1.603 < 1.645
	Fail to reject H0.

When doing a hypothesis test to determine whether this high proportion of older workers was due to chance at a critical value of 1.645, the z value did not fall into the rejection region of values greater than the critical value (z = 1.603). This outcome fails to provide sufficient evidence that the high proportion of workers 40 and older that were terminated was deliberate, and the null hypothesis is not rejected based on this finding. The proportion of older workers that were terminated was due to chance, not due to intended discrimination against these employees.

Conclusion:

Plaintiff side's statement is the most convincing and there is significant statistical evidence that supports their claim. The z value in exhibit A massively exceeds the rejecting point which means that there is enough evidence to support the statement that the mean age of terminated workers is larger than mean age of active workers, and they were terminated on the basis of age. Oppositely, z-value in exhibit B falls below the rejection region with a slightest difference, so the evidence provided in Exhibit B is considered to be weaker.

There was an age based discrimination of 40 years and older workers.