

# [Friedmann’s million years. furthermore, the total mass of](https://assignbuster.com/friedmanns-million-years-furthermore-the-total-mass-of/)

Friedmann’s model showed that the galaxies moveaway from one another. The universe can be compared to a balloon painted withspots. If the balloon is steadily blown up, the distance between the spots willgrow. More the distance means faster movement. No spot can be pinpointed as thecenter of expansion.

The farther apart the spots, the faster they will bemoving. But the question is, will contraction begin for the universe in thefuture or will its expansion continue? The current expansion rate can be derivedfrom the velocities at which other galaxies are moving away. However, theirdistances can only be measured indirectly. This brings us to the assumption thatthe universe expands between 5 to 10 percent every thousand million years.

Furthermore, the total mass of the stars is extremely less than the required amount to haltthe expansion. Therefore, evidence suggests that the universe will continue toexpand forever. And, if it’s progressing towards recollapse, it won’t happenfor at least another 10, 000, 000, 000 years. The most successful theory of the origin ofthe universe is the big bang. It assumes that distance between neighboringgalaxies must have been zero.

The density of the universe and the curvature ofspace-time would have been infinite. Within a big bang, there is a singularitywhich means that all laws of science would break down. This is based on theassumption that space-time is smooth and almost flat. That is why allpredictability fails at the big bang.

Any event before the big bang will benullified. They have no consequences and they can be cut off the scientificmodel of the universe. Time, therefore, begins at the big bang.

Another theory called steady stateattempted to disprove the big bang. It claims that as galaxies move away, newones are being formed in between. And, that the new galaxies were created fromnew matter that is being developed. But, the discovery of the microwaveradiation by Penzias and Wilson invalidates it. Therefore, the steady statetheory should be abandoned.  Roger Penrose proposed the existence of black hole in1965.

He thought that a star collapsing under its own gravity may be trapped ina region. This void has a surface and volume that eventually shrinks to zero. Thecollapsed star will eventually form a