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Time dilation and black holes (12+3)

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Black holes are one of the most mysterious objects in the universe. These objects(as you know) attracts particles towards it. It's is formed when a heavy star dies,it forms a 4d curve in the space-time and attracts everything towards it. With this curvature,time is also effected. The more we go closer to the black hole the more the time gets dilated. This is explained by Einstein's famous twin paradox in his special theory of relativity. Inside the black hole the time stops.
The time dilation formula is given below-t = t0/(1-v2/c2)1/2
where: t = time observed in the other reference frame
t0 = time in observers own frame of reference (rest time)
v = the speed of the moving object
c = the speed of light in a vacuum

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