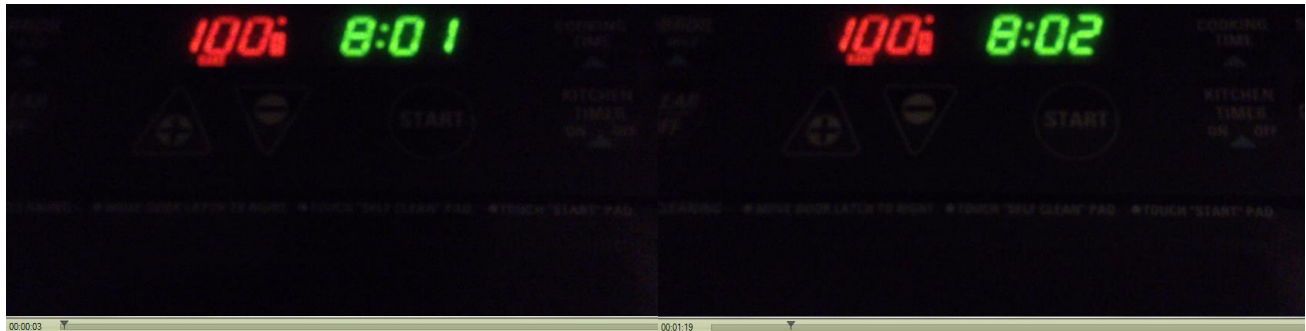


## Preheating the Oven

Suppose you need to preheat a gas oven to 400° Fahrenheit. How long will it take? This 5-Part task will help you to organize your thinking to answer this question.

### Part 1 – What Information Do You Need?

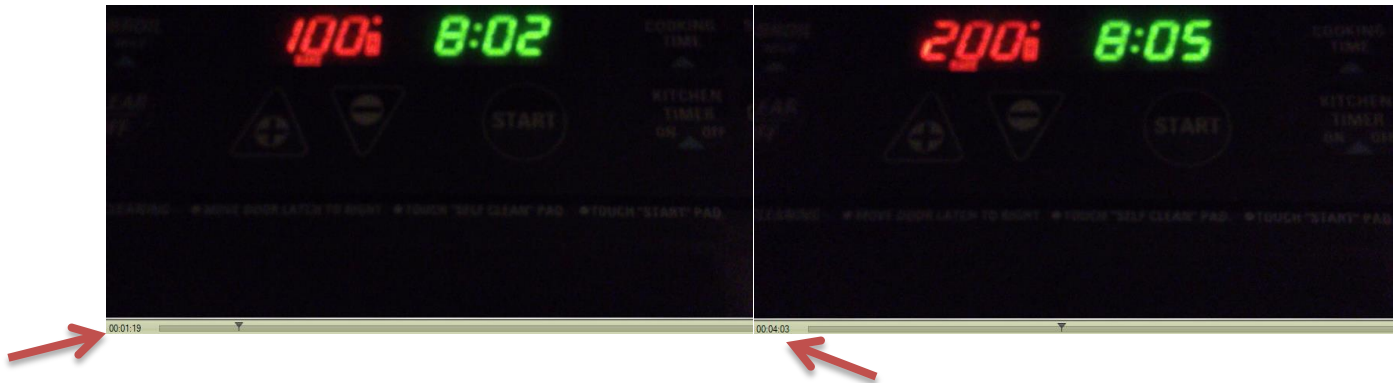
Consider the screen shots shown below. Note that the time in the first image is 0:03 and note that at 1:19, the temperature remains listed at 100°. How long do you think it will take to heat the oven to 400°? What additional information would you like to have to answer this question? Explain/describe how this additional information would be used to answer the question “how long will it take to preheat the oven to 400°?”



## Part 2 – Additional Information

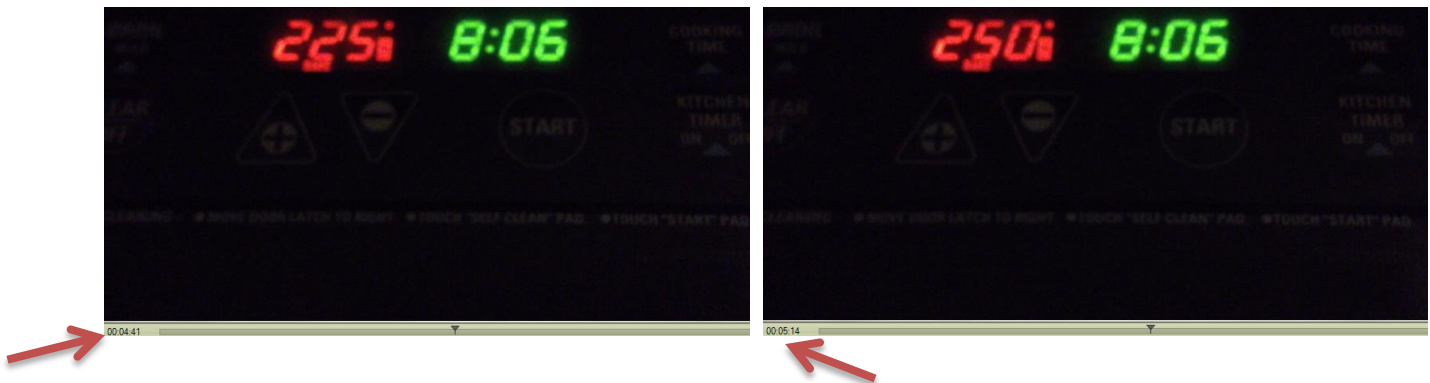
Next, you are shown snapshots of the elapsed time (notice the bottom left hand corner of each image) and temperature. At 1:19, the temperature is  $100^{\circ}$ . At 4:03, the temperature is  $200^{\circ}$ . How long will it take to preheat the oven to  $400^{\circ}$ ? Justify your response by clearly revealing your mathematical thinking.

How confident are you in your response? Is there different or additional information you would like to have? Explain what different or additional information you would like to have and how you would use this information to answer the question.



### Part 3 – Even More Information

Now, two new screenshots show the time and the temperature. Use this information to refine your answer to the question, “how long will it take to preheat the oven to 400°?” Again, justify your response by clearly revealing your mathematical thinking.



## Part 4 – The Last Estimation

The mathematical intent of this activity was to focus on ways that you can make predictions about the time it takes to preheat the oven and to think about the information you may need in order to accurately answer the question.

One idea regarding the needed information could have been to have more data showing the time elapsed and the temperature. For this last estimation, you are provided with partial data showing the elapsed time and the oven temperature. Once again, refine or confirm your answer to the question, “how long will it take to preheat the oven to 400°?” Again, justify your response by clearly revealing your mathematical thinking.

Time Elapsed (in seconds)	Oven Temperature (°F)
0	100
10	100
20	100
30	100
40	100
50	100
60	100
70	100
80	100
90	106
100	112
110	118
120	125
130	130
140	135
150	140
160	146
170	153
180	159
190	165
200	170
210	177
220	183
230	190
240	198
250	205
260	211
270	218
280	225
290	232
300	240
310	248
320	255
330	261
340	267
350	274
360	280
370	286
380	290
390	298
400	303
410	308
420	314
430	320
440	326
450	331
460	335
470	340
480	346
490	350
500	355
510	359
520	365
530	368
540	372

## Part 5 – Conclusion

To check your answer, watch the complete video at <http://youtu.be/I2ooIWFACII> and see how long it takes to heat the oven to 400°. Write a brief concluding statement that explains the ways of thinking and strategies that worked for you or describe why you think your final result was not correct.