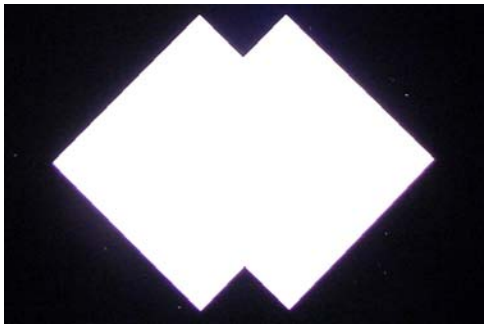
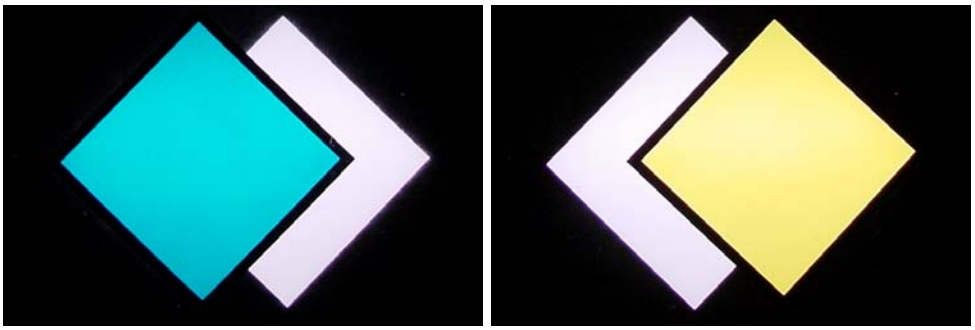
Question #360

The holiday season is upon us, and that means the ~~chore~~ joy of hanging holiday lights is just around the corner! Next time you are dazzled by one of your neighbors' dazzling colored decorations (and perhaps wondering how many kilowatt-hours that person might be wasting each night) we hope you will remember this question about the nature of color.

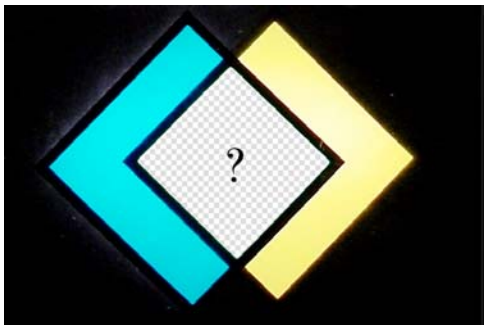
This week we will consider an apparatus that emits white light through a screen, much like an overhead projector.



In front of it various colored transparencies can be placed. Below are pictured the color cyan (a combination of green and b) and the color yellow.



Question: What color will appear in the overlapping region when the cyan and yellow transparencies are combined?



- (a) The overlapping region will appear white, since all the primary colors will be present: cyan = green + blue; yellow = red + green. There might be a *slight* green tinge, since there is more green than the other colors.

- (b) The overlapping region will be magenta, because any color that is shared between the two transparencies (i.e. green) will be filtered out, leaving only red + blue = magenta.
- (c) It is impossible to tell, because the color produced depends on the exact frequency curve distribution of each transparency, which is not given.
- (d) The overlapping region will appear green, since by the rules of negative color mixing cyan + yellow = green.
- (e) Other (you must explain).

Click here for Answer #360 after December 14, 2009.

Question of the Week

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For questions and comments regarding the *Question of the Week* contact Dr. Richard E. Berg by e-mail or using phone number or regular mail address given on the Lecture-Demonstration Home Page.