

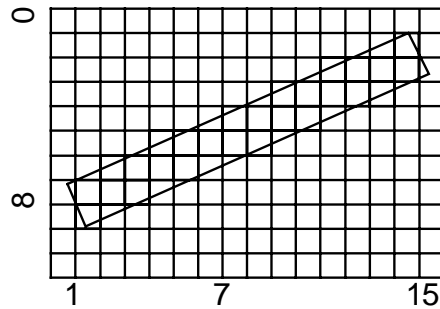
## Supplement to Chapter 2 of *The Science of Digital Media* – Digital Image Representation

### Worksheet – Digital Imaging > Aliasing in Rendering<sup>1</sup>

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Before completing this worksheet, you should view the on-line interactive tutorial "Aliasing in Rendering." This tutorial can be accessed at the website for *The Science of Digital Media*.

1. The red lines in the following image represent the edges of a two-pixel-wide black line, and the gray grid indicates the individual pixels on a display device. Shade the pixels that would be colored black if this (not anti-aliased) line were to be rendered on a display monitor. Then explain why aliasing has occurred and how it changes the image's appearance.



2. Explain the anti-aliasing technique discussed in the tutorial. How does it reduce the appearance of jagged stairstepping during rendering, and what are its negative effects?

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3. The images below are close-ups of black lines. One was created as a vector graphic, while the other is a bitmap. Using your knowledge of these formats and their effects on aliasing during magnification and rendering, indicate which is the vector graphic and which is the bitmap, then explain your choices.



*vector graphic*



*bitmap*