

Picture Lab Questions/Exercises

A1: Introduction to Digital Picture and Color

1. How many bits does it take to represent the values from 0 to 255?
8 bits
2. How many bytes does it take to represent a color in the RGB color model?
3 bytes
3. How many pixels are in a picture that is 640 pixels wide and 480 pixels high?
307,200 pixels

A2: Picking a Color

1. How can you make pink?
You can make pink by having a value of 255 for both red and blue and then lowering the green value to about 150.
2. How can you make yellow?
You can make yellow by setting the red and green values to 255 and lowering the blue value to 0.
3. How can you make purple?
You can make purple by setting the red value to 150 green to 0 and blue to 255.
4. How can you make white?
set all red, green, and blue values to 255
5. How can you make dark gray?
set all red, green, and blue values to 85

A3: Exploring a Picture

1. What is the row index for the top left corner of the picture?
zero
2. What is the column index for the top left corner of the picture?
zero
3. The width of this picture is 640. What is the right most column index?
639
4. The height of this picture is 480. What is the bottom most row index?
479

5. Does the row index increase from left to right or top to bottom?
top to bottom
6. Does the column index increase from left to right or top to bottom?
left to right
7. Set the zoom to 500%. Can you see squares of color? This is called *pixelation*.
Pixelation means displaying a picture so magnified that the individual pixels look like small squares.

A4: Two Dimensional Arrays in Java **no questions**

A5: Modifying a picture

1. Open Picture.java and look for the method getPixels2D. Is it there? No it is not.
2. Open SimplePicture.java and look for the method getPixels2D. Is it there? Yes it is.
3. Does the following code compile? `DigitalPicture p = new DigitalPicture();` No it does not.
4. Assuming that a no-argument constructor exists for SimplePicture, would the following code compile? `DigitalPicture p = new SimplePicture();` Yes
5. Assuming that a no-argument constructor exists for Picture, does the following code compile?
`DigitalPicture p = new Picture();` Yes
6. Assuming that a no-argument constructor exists for Picture, does the following code compile?
`SimplePicture p = new Picture();` yes
7. Assuming that a no-argument constructor exists for SimplePicture, does the following code compile? `Picture p = new SimplePicture();` NO