On LaserJet Printers:

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LaserJets, like many other printers, print in lines per inch (lpi). The lines represent in digital image printing lines of pixels. If the pixels are printed squarely than each square area (of a width equal to that of the actual line width) must be printed with a desired amount of ink variations in order to generate the gray levels (see John Russ' book for a nice illustration on how this is done in a LaserJet). LaserJets and Inkjets use dots as the smallest printed entity. If you would print with 600 dpi and 100 lpi (LaserJet 4) then you could place 6 dots per line (600/100=6). As a consequence you can maximally place 6X6 dots per pixel or make 36 gray levels plus no-dots (white). Thus a LaserJet 4M will print with 37 graylevels. This is just at the visual limit of gray level recognition. A 1200 dpi printer which uses 100 lpi, will be able to generate 145 gray levels per pixel (1200/100=12; 12X 12+1=145). That's why the Lexmark is so good because the eye can not distinguish that amount of gray levels (beyond the contrast resolution of our eyes). However, 100 lpi (25:100=0.25 mm) also is just at the recognition level of the eye with regards to spatial resolution. Print heads in LaserJets can print much better and, if combined with HP's superfine ink powders, they can easily be driven at 4800 dpi on plain paper. There are many high-resolution printers on the market.. However, for comparison, print speed is as important as adequate print resolution. LazarPrint prints 300 lpi and 256 gray levels, both surely beyond the resolution limit of the unaided eye and thus producing "photography like" printing quality. However, in addition, LazarPrint prints 1-10 MB of images per page in 20 seconds (on a conventional LaserJet).

If you would like to see some proof, look at a comparison of these printers at the following web site, where dpi/lpi/eye resolution are compared for a 1K X 1 K X 8-bit test image:
http://panda.uchc.edu/htklaus/Digilab/Printing-ResultsL.html