# Homework 4 Representing images

1. Photos have been taken for a school website on a 10 megapixel digital camera.
   1. State what is meant by ‘10 megapixel’. [2]
   2. Explain what the resolution of an image describes. [2]
   3. 30 images have been placed on the homepage of the website and it is now loading slowly. Describe three changes that could be made to the images to help alleviate this problem. [3]
2. A space invader image, pictured below, has been created as part of a computer game.

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* 1. State and explain the minimum number of bits that must be used to represent   
     this image. [3]

The first line of the image can be encoded as 11111100 00111111. A black pixel is   
coded as 00.

* 1. Suggest a suitable 16-bit pattern that could be used to define the third row   
     in the image. [2]
  2. Calculate the file size of the image in bytes. [3]
  3. Metadata is also stored with the image data. What is meant by metadata? [1]
  4. Give two examples of metadata that might be included with this file. [2]
  5. The colour red, represented in 24-bit colour, can be represented in hexadecimal as ff0000. Explain why. [2]

1. Give **one** advantage of vector graphics and **one** advantage of bitmap graphics. [2]

[Total 22 marks]