



Answers to Chapter 6 questions

Activity 6.1

- a number of minutes = $3 + 5 + 6 + 4 + 5 + + 2 + 7 + 8 + 8 = 48$
48 minutes requires $48 \times 12 \text{ MB} = 576 \text{ MB}$
- b 90% reduction leaves file size of $10\% \times 576 \text{ MB} = 57.6 \text{ MB}$
- c average track length = $48/9 = 5.33$ minutes
so each track needs $5.33 \times 12 \text{ MB} = 63.96 \text{ MB}$
in MP3 format, each track uses 6.396 MB of storage
so $800/6.396 = 125$ tracks can be stored

Activity 6.2

- a
 - i $1200 \times 1600 = 1\,920\,000$ pixels
 - ii 3 bytes per pixel = $5\,760\,000$ bytes
 - iii reduced by a factor of 8 gives $720\,000$ bytes = 703 KB
- b
 - i $3072 \times 2304 = 7\,077\,888$ pixels
 - ii 3 bytes per pixel = $21\,233\,664$ bytes = 20.25 MB
 - iii reduced by a factor of 5 gives $4\,246\,733$ bytes = 4.05 MB
 - iv $4 \text{ GB}/20.25 \text{ MB} = 4096 \text{ MB}/20.25 \text{ MB} = 202.27$
So 202 uncompressed files can be stored.
 - v $4 \text{ GB}/4.05 \text{ MB} = 4096 \text{ MB}/4.05 \text{ MB} = 1011.35$
So 1011 compressed files can be stored.