

### Problem 1

Using the distance modulus formula, this distance is (ignoring extinction)

$$d = 10^{(m-M+5)/5} = 10^{(25+19.5+5)/5} = 7.94 \text{ Gpc.}$$

### Problem 2

### Problem 3

### Problem 4

### Problem 5

### Problem 6

(i)

(ii)

(iii)