

## Chapter 16.1 – Light

16. Wavelength increases.

31)  $7.0 \times 10^{-7}$  m

32)  $3.84 \times 10^8$  m

33)  $5.0 \times 10^2$  s

34) 3.03 m

35)  $1.0 \times 10^{10}$  Hz

36) 2.0 lx

37) 3.2 m

38)  $1.4 \times 10^3$  lm; Thus, the 100 W (1620 lm) setting is needed.

39) 36 cd

40) answers

a)  $4.2 \times 10^9$  m

b) 27 km/s

c)  $3.0 \times 10^1$  km/s; so fairly accurate

41)  $3.0 \times 10^4$  km; the mirror would be half this distance, or 15 000 km away. Earth is 40 000 km in circumference, so this is 3/8 of the way around the Earth!

42) 2.3 m

43)  $1.31 \times 10^3$  lm

44) 15 m