

## CH7 Extra Practice

1. Rainbows : refraction, dispersion, internal reflection, refraction, dispersion
2. blue sky : blue light (shorter  $\lambda$ ) is scattered (refracted) more by molecules in atmosphere
3. red sunset : blue light scattered away so red and orange are only in line of sight
4. refraction
5. violet - shorter  $\lambda$ , refract most
6. UV
7. all light travels same speed in vacuum  $3.0 \times 10^8 \text{ m/s}$
8. diffraction
9.  $\frac{360}{36} - 1 = \underline{\underline{9}}$
10.  $d_i = d_o$  so 4.0 m
11. 10 m/s
12. 1.1 m
13. frequency
14. Diamonds have a high index of refraction ( $n = 2.42$ ) plus are cut such that light is reflected multiple times inside and sends light out in all directions.

15. green

16. aim through "D"

17. D

$$18. n = \frac{\sin \theta_i}{\sin \theta_r} = \frac{\sin 35}{\sin 25} = 1.4$$

$$19. 2.42 = \frac{\sin 63.0^\circ}{\sin \theta_r} \quad \theta_r = \underline{\underline{21.6^\circ}}$$

$$20. n = \frac{c}{v} \quad v = \frac{c}{n} = \frac{3 \times 10^8 \text{ m/s}}{1.453} = \underline{\underline{2.06 \times 10^8 \text{ m/s}}}$$