1) B
2) E
3) A
4) A
5) B
6) E
7) D
8) C
9) C
10) C
11) A
12) A
13) A
14) B
15) B
16) B
17) D
18) D
19) A
20) B
21) Average distance from Earth to the Sun
22) 12 hours
23) New Moon
24) The same
25) Yes
26) F=ma. Earth's acceleration is much greater than the Sun's because Earth's mass is much smaller than the Sun's.
27) 300C
28) Escape velocity
29) Twelve and a half hours
30) Absorption
31) Nucleus
32) Pressure
33) Blue (or purple or something similar)
34) Wavelengths decrease
35) Speeds of their light are the same
36) Earth's atmosphere absorbs ultraviolet light
37) Mercury, Mars, or Pluto
38) Mars and Jupiter
39) Hydrogen and helium
40) Gravity
41) Angular resolution = \(2.5 \times 10^5\) arcseconds x wavelength/diameter
   = \(2.5 \times 10^5\) arcseconds x (500 x \(10^{-9}\) m) / (5 x \(10^{-3}\) m)
   = \(2.5 \times 10^5\) arcseconds x (5 x \(10^{-7}\)) / (5 x \(10^{-3}\))
   = \(2.5 \times 10^5\) arcseconds x \(10^{-4}\)
   = 25 arcseconds

42) \((\text{orbital periods in years})^2\) = \((\text{average distance from Sun in AU})^3\)
   \((\text{orbital periods in years})^2\) = 4^3
   \((\text{orbital periods in years})^2\) = 64
   orbital periods in years = 8

43) Any five from:
   Terrestrial planets have smaller size than jovian planets
   Terrestrial planets have smaller mass than jovian planets
   Terrestrial planets have higher density than jovian planets
   Terrestrial planets have few (if any) moons, jovian planets have many moons
   Terrestrial planets have no rings, jovian planets have rings
   Terrestrial planets are made mostly of rock and metal/iron, whereas jovian planets are made mostly of hydrogen, helium, and hydrogen compounds (water, methane, ammonia)
   Terrestrial planets are closer to the Sun than jovian planets
   Terrestrial planets are closer together than jovian planets are
   Terrestrial planets have warm surfaces, jovian planets are cool at their cloudtops