Hw: p.477 #10,11

11. It is sometimes useful to be able to write an equation of a plane in terms of its intercepts. If a, b, and c represent the x-, y-, and z-intercepts, respectively, then the resulting equation is $\frac{x}{a} + \frac{y}{b} + \frac{z}{c} = 1$.

a. Determine the equation of the plane that has x-, y-, and z-intercepts of 3, 4, and 6, respectively.

b. Determine the equation of the plane that has x- and z-intercepts of 5 and -7, respectively, and is parallel to the y-axis.

c. Determine the equation of the plane that has no x- or y-intercept, but has a z-intercept of 8.

(a) $\quad \frac{x}{3} + \frac{y}{4} + \frac{z}{6} = 1$

(b) $\quad \frac{x}{5} + \frac{y}{b} + \frac{z}{-7} = 1$

parallel to y-axis means that
y can be anything
it is a parameter

$\frac{x}{5} - \frac{z}{7} = 1$

(c) $\quad \frac{z}{8} = 1 \quad$ or $\quad z = 8$