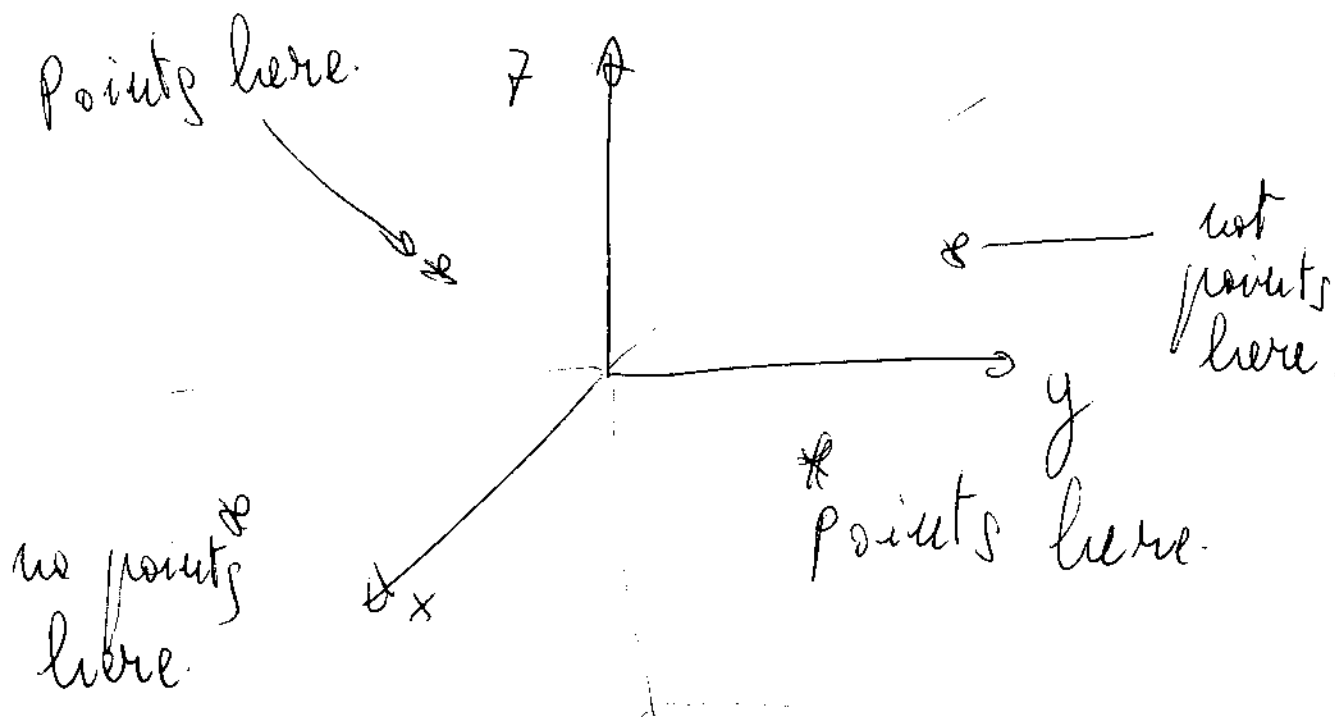


HWK 4 Solutions

Problem 15.1 - 32

need $x > 0$ or $x < 0$
 $y > 0$ or $y < 0$

i.e. x and y must have the same sign
and $xy \neq 0$ - z can be anything.



Problem 15.2-28

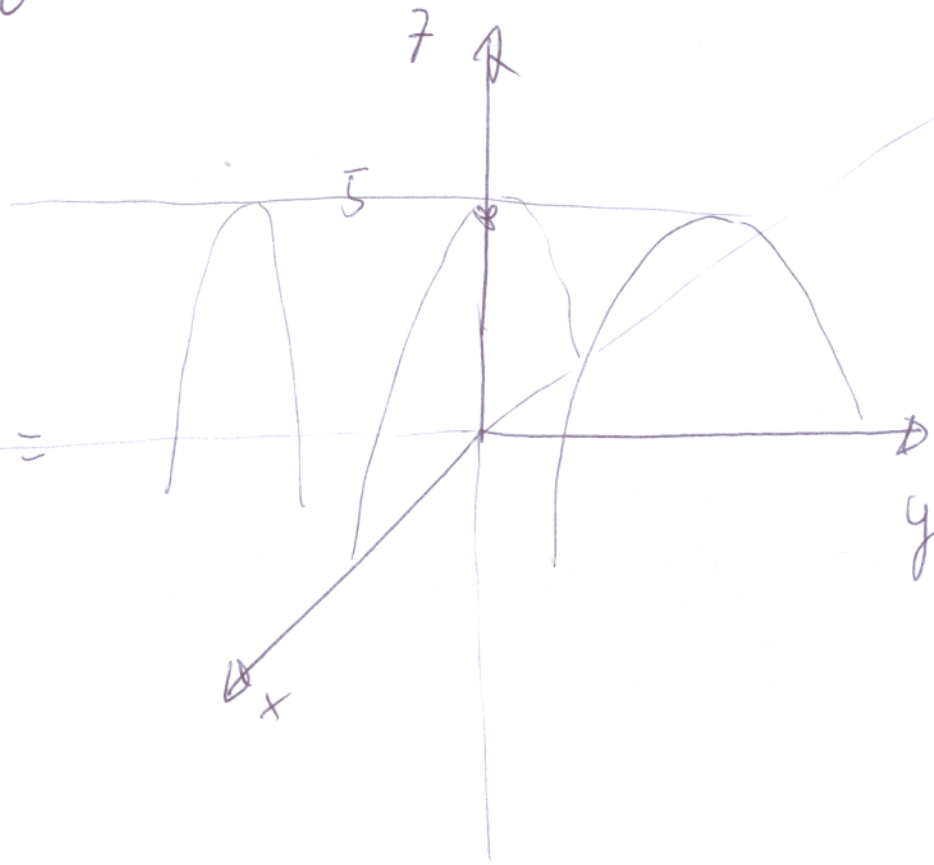
$$z = \frac{5}{4} \sqrt{16 - x^2}$$

plane $y = 3$

Point $(2, 3, \frac{5\sqrt{3}}{2})$

$$p_x = \frac{5}{4} \frac{-2x}{\sqrt{16-x^2}} =$$

$$= -\frac{5x}{4\sqrt{16-x^2}}$$



for $x = 2$

$$\frac{-10}{4\sqrt{16-4}} = -\frac{5}{2} \frac{1}{\sqrt{12}} - \frac{5}{4\sqrt{3}}$$

Problem 15.3 - 16

check limit along x axis i.e. $y = 0$.

$$\lim_{x \rightarrow 0} \frac{0}{x^2} = 0$$

check limit along line $y = x$

$$\lim_{x \rightarrow 0} \frac{x^2 + x^3}{2x^2} = \frac{1}{2}$$

$0 \neq \frac{1}{2}$ limit does not exist.

~~1/2~~
 $\frac{1+x}{2} = \frac{1}{2}$