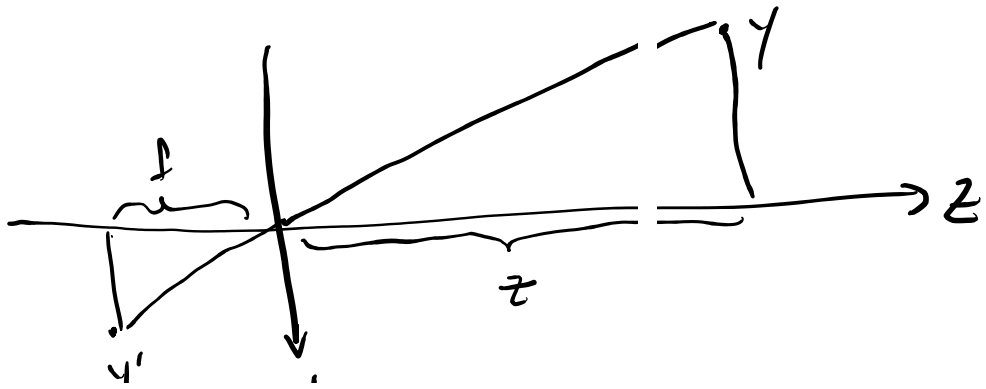
2023 may 1

Monday, May 1, 2023 13:40

Sp. 22 Review Exam 1 q17

What is $\sqrt{(x')^2 + (y')^2}$



$$\frac{y'}{f} = -\frac{y}{z} \qquad \frac{x'}{f} = -\frac{x}{z}$$

$$y' = -\frac{yf}{z} \qquad x' = -\frac{xf}{z}$$

$$\sqrt{(x')^2 + (y')^2} = \sqrt{\left(\frac{yf}{z}\right)^2 + \left(\frac{xf}{z}\right)^2}$$

$$= \frac{f}{-}\sqrt{\quad}$$

$z = \sqrt{x^2 + y^2}$

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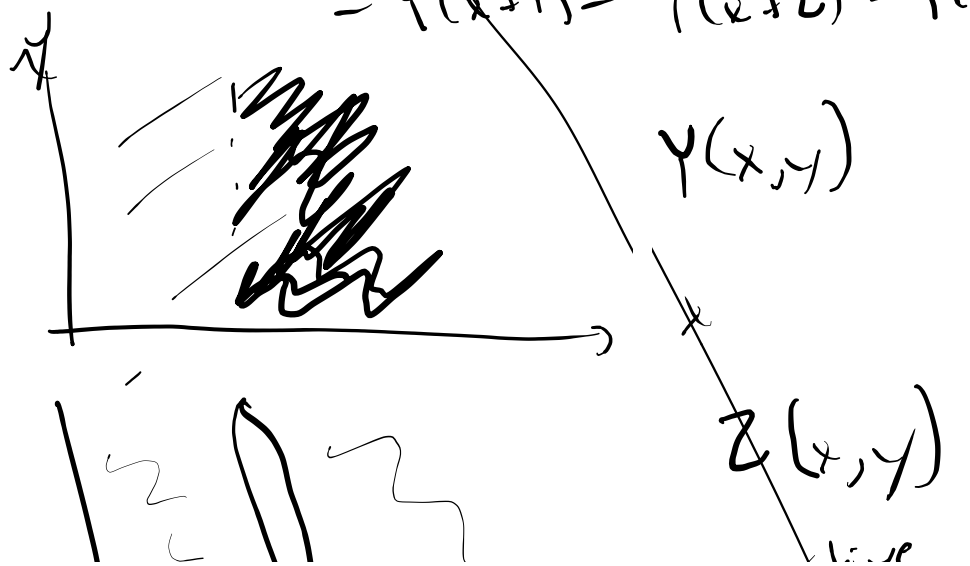
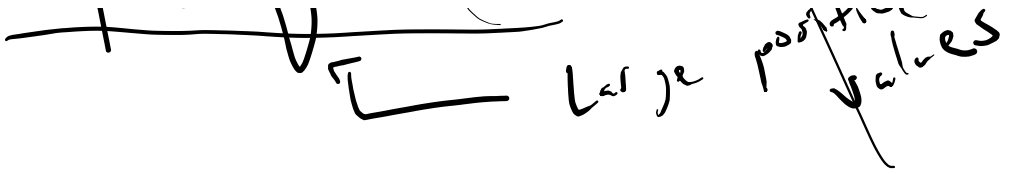
19) $z(x,y) = \sum_{m,n} h[m,n]\, Y(x-m, y-n)$

$= \sum_{m,n} h[x-m,\ y-n]\, Y(m,n)$

$$\sum_m h(m,n)\, Y(x-m, y-n)$$

$$= \frac{1}{21}\Big(Y(x-1)+Y(x-2)+Y(x-3) - Y(x+1) - Y(x+2) - Y(x+3)\Big)$$





A: Edge detection, b/c $Z(x,y)$ subtracts $Y(x',y')$ to the left of x from $Y(x',y')$ to the right of x.