60% - Tests

40% - Homework

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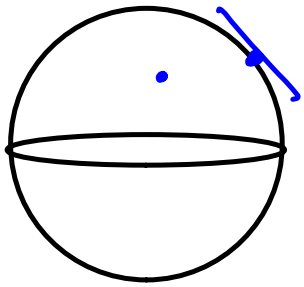
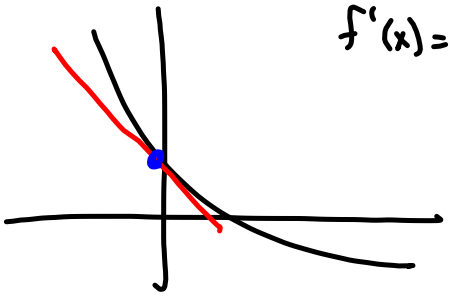
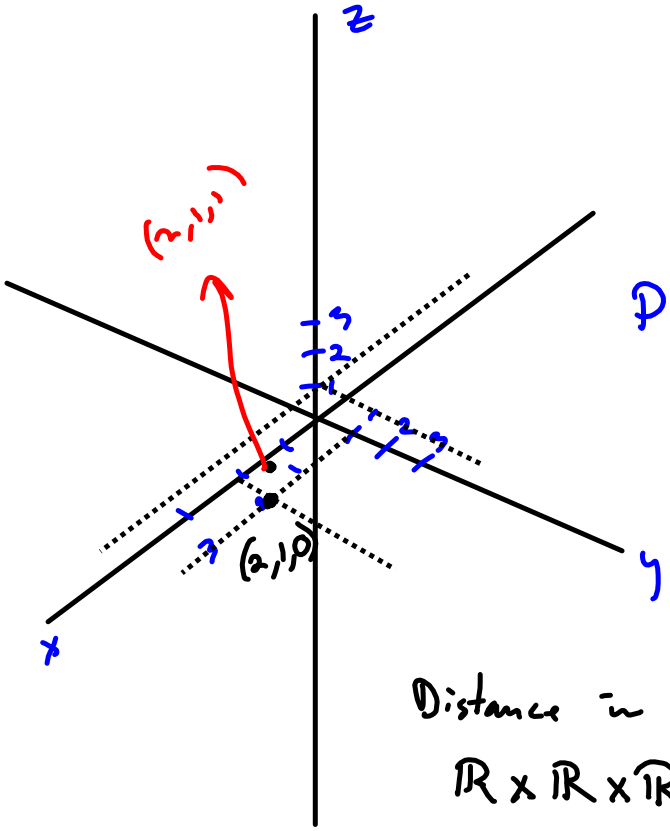




$f'(x) = -1.1$



P(2,1,1)

Distance in $\mathbb{R}^3$ = Space

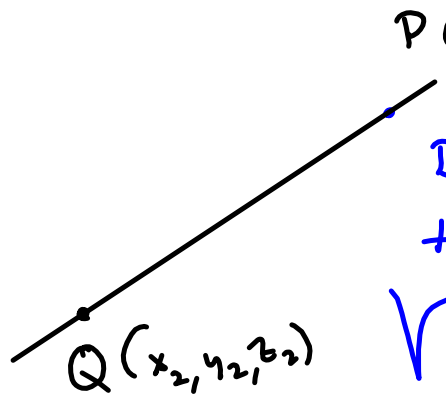
$\mathbb{R} \times \mathbb{R} \times \mathbb{R}$

$\mathbb{R}^2 = \mathbb{R} \times \mathbb{R} = \{(x,y) \mid x,y \in \mathbb{R}\}$

Cartesian (Cross) Product

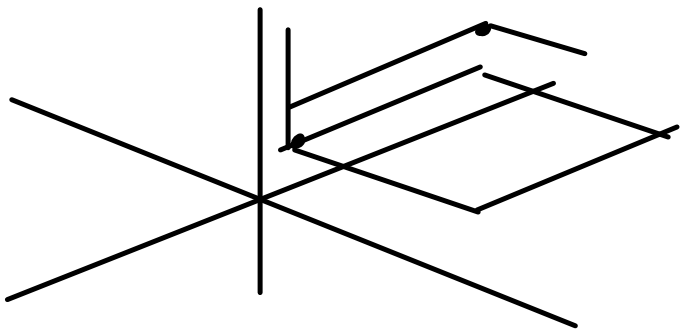
"Cross Product" has a specific meaning. TORQUE

Distance in $\mathbb{R}^3$



D(P, Q) = Distance from P to Q is

$$\sqrt{(x_1-x_2)^2+(y_1-y_2)^2+(z_1-z_2)^2}$$



Distance in $\mathbb{R}^2$ generalizes to distance in $\mathbb{R}^3$ as hoped & expected.

$x^2+y^2+z^2 = 16$

$(x,y,z) \in$ Sphere, then

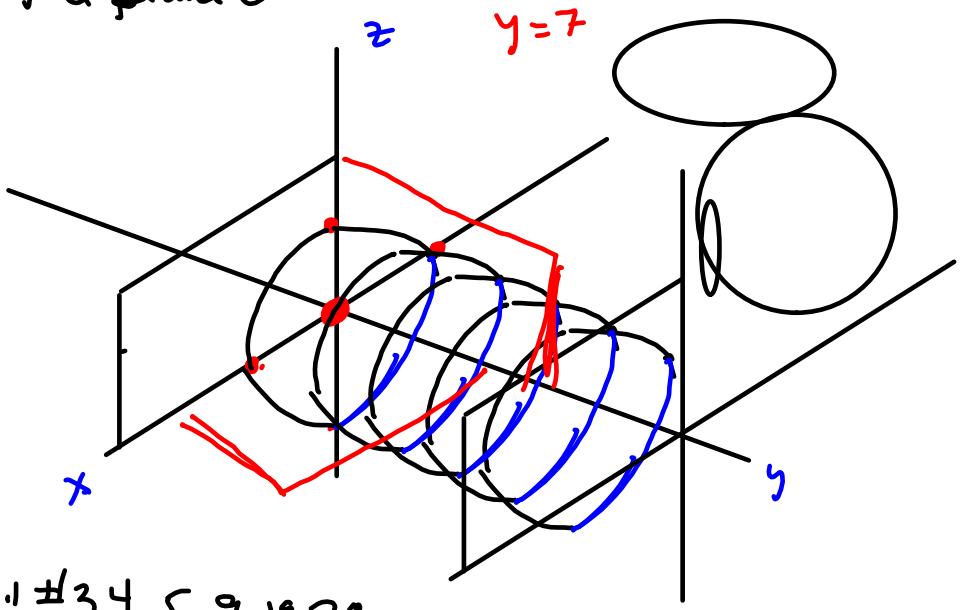
$\sqrt{(x-0)^2+(y-0)^2+(z-0)^2} = 4$

$x^2+z^2 = 16$

To "see" something in $\mathbb{R}^3$ hold one variable constant and analyze like you're in the plane.

$y=0$: $x^2+z^2=16$

The plane



§12.1 #3, 4, 5, 9, 19, 20,

Read 12.2.

$z=7$ is plane parallel to xy-plane.