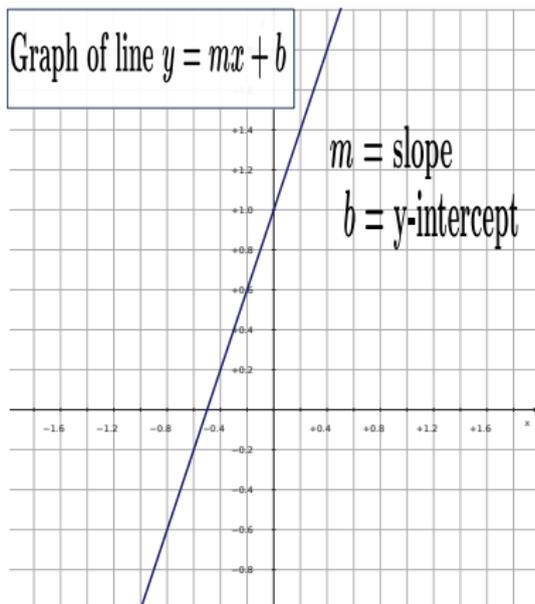


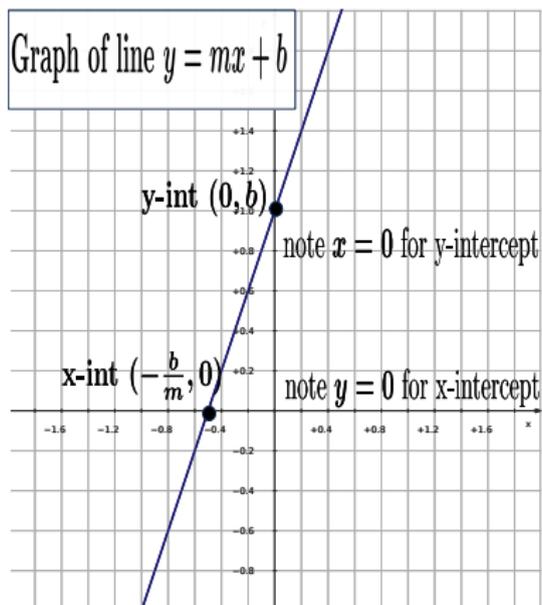
# Linear Functions

## Graph of Line



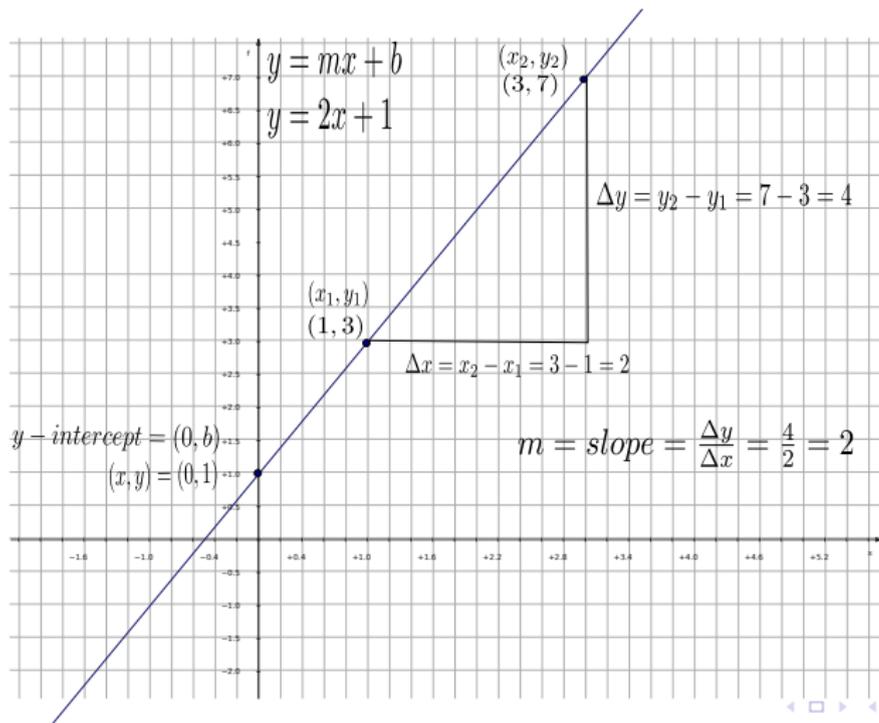
# Linear Functions

## x and y intercepts



# Slope

$$m = \frac{\text{rise}}{\text{run}}$$



# What is a slope?

definition

Definition

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- Vertical lines have slope undefined.

# Slopes of Lines

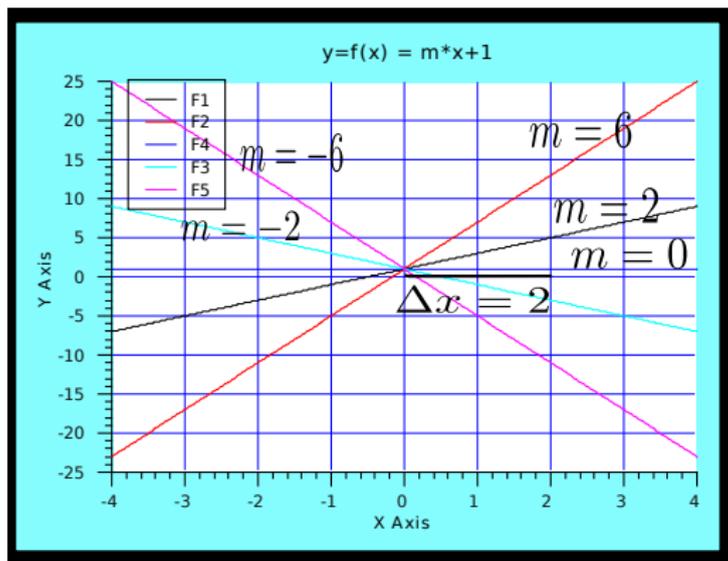
increase and decrease

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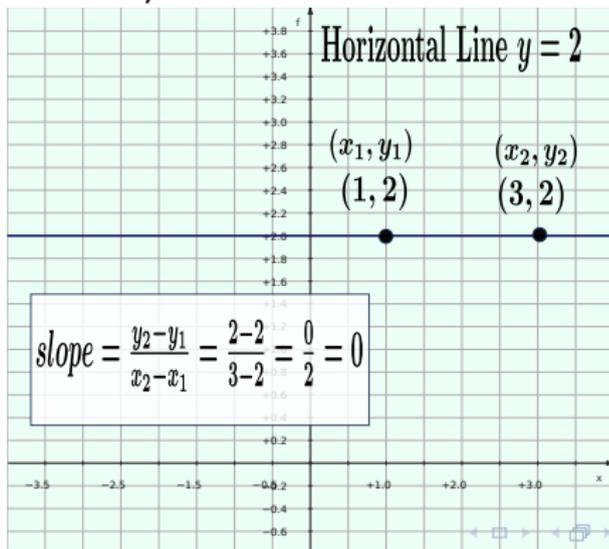
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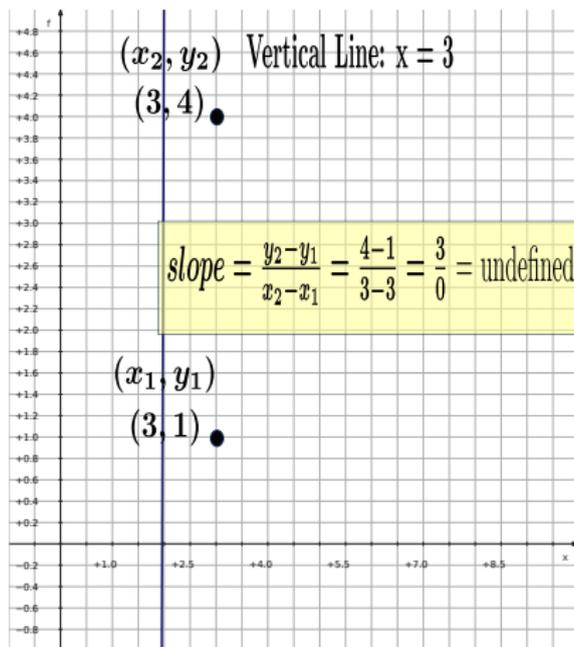
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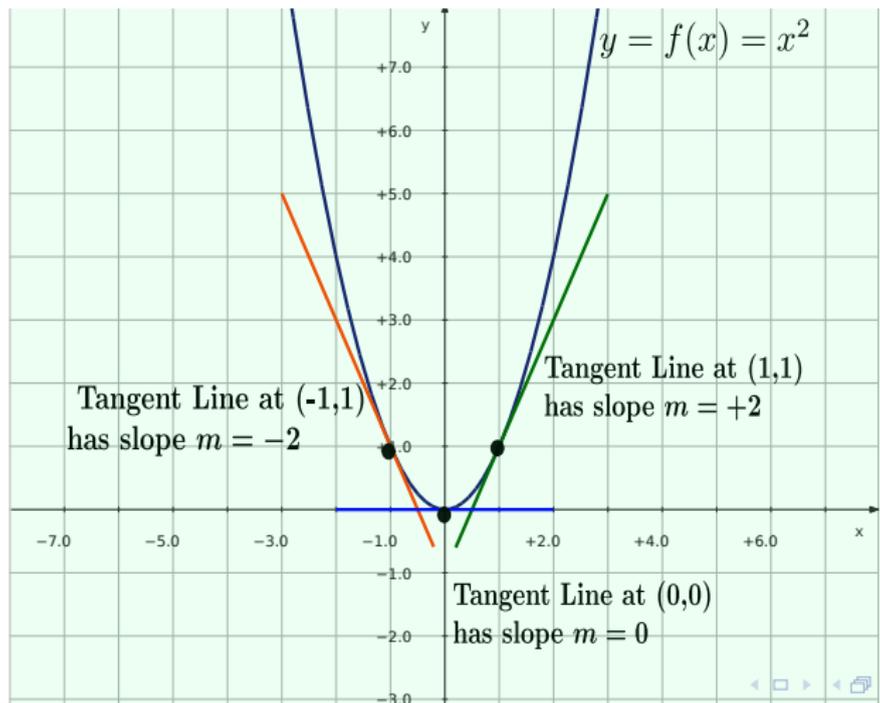
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# Tangent Lines

from algebra to calculus



# Equations of lines

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example

- 1 Find equation of line with points  $P1 = (1, 1)$  and  $P2 = (3, 5)$

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  - $y = 2x - 1$

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- use **m** and **P1** with point-slope equation
- $y - 1 = 2(x - 1) = 2x - 2$
- $y = 2x - 1$
- final expression in **slope-intercept form**