

February 27, Week 7

Today: Chapter 5, Applying Newton's Laws

Homework #5, Due March 5.

Mastering Physics: 10 problems from chapters 4 and 5

Written Question: 5.74

Exam #2 should be graded by Wednesday.

Apparent Weight

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Scale's reading = apparent weight = n .

Clicker Quiz

What is the apparent weight of a man of mass M in an elevator that is accelerating downward at $g = 9.8 \text{ m/s}^2$?

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(a) Mg

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(a) Mg

(b) $2Mg$

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What is the apparent weight of a man of mass M in an elevator that is accelerating downward at $g = 9.8 \text{ m/s}^2$?

(a) Mg

(b) $2Mg$

(c) $\frac{1}{2}Mg$

Clicker Quiz

What is the apparent weight of a man of mass M in an elevator that is accelerating downward at $g = 9.8 \text{ m/s}^2$?

(a) Mg

(b) $2Mg$

(c) $\frac{1}{2}Mg$

(d) 0

Clicker Quiz

What is the apparent weight of a man of mass M in an elevator that is accelerating downward at $g = 9.8 \text{ m/s}^2$?

(a) Mg

(b) $2Mg$

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Friction

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Static Friction - \vec{f}_s , Force on a stationary object that keeps it at rest.

Incline Example

Example: A mass is placed on an incline with angle α . It does not move. What is the magnitude of the static frictional force (and normal force) acting on it?

Incline Example

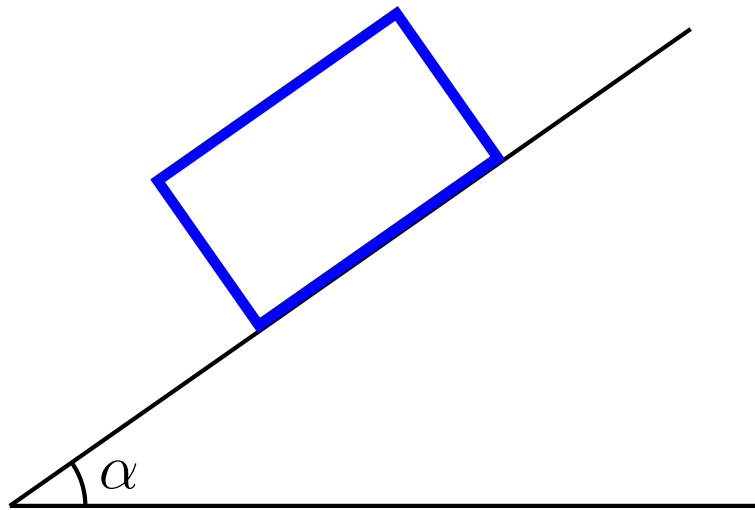
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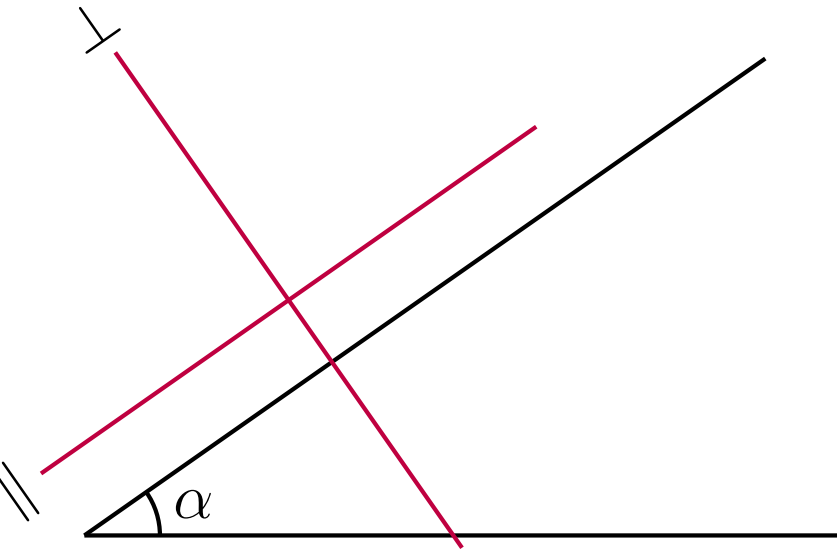


Parallel and Perpendicular Components

For incline problems, it is usually more convenient to use coordinates parallel (\parallel) and perpendicular (\perp) to the incline.

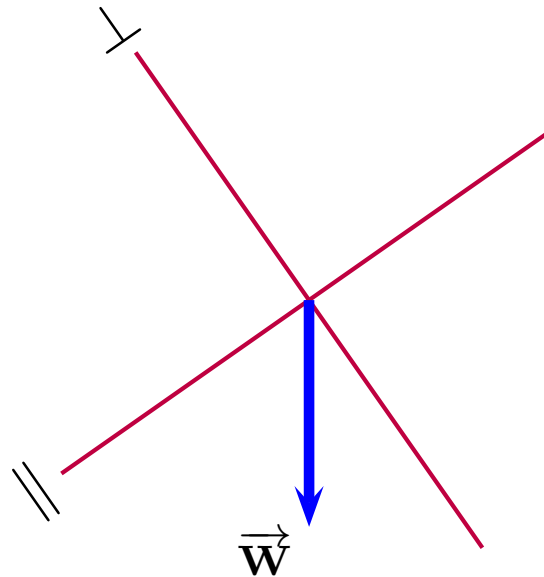
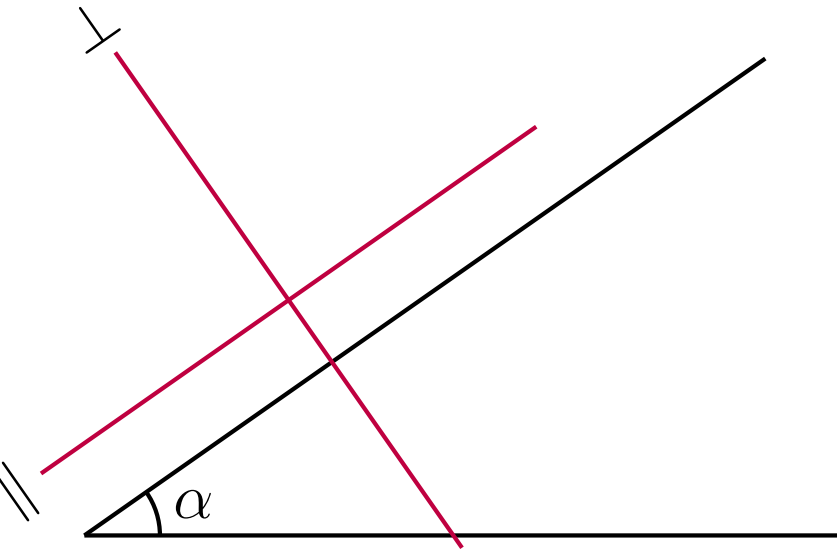
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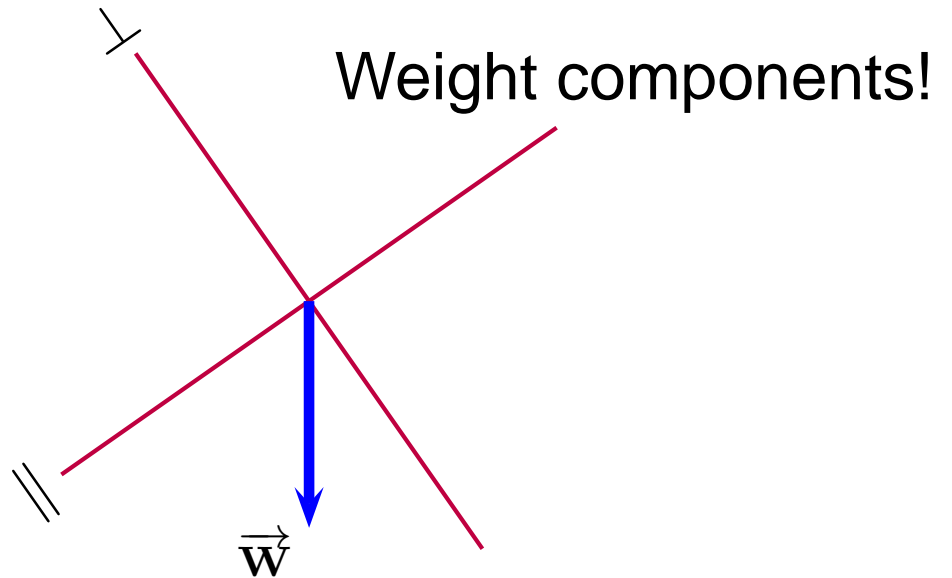
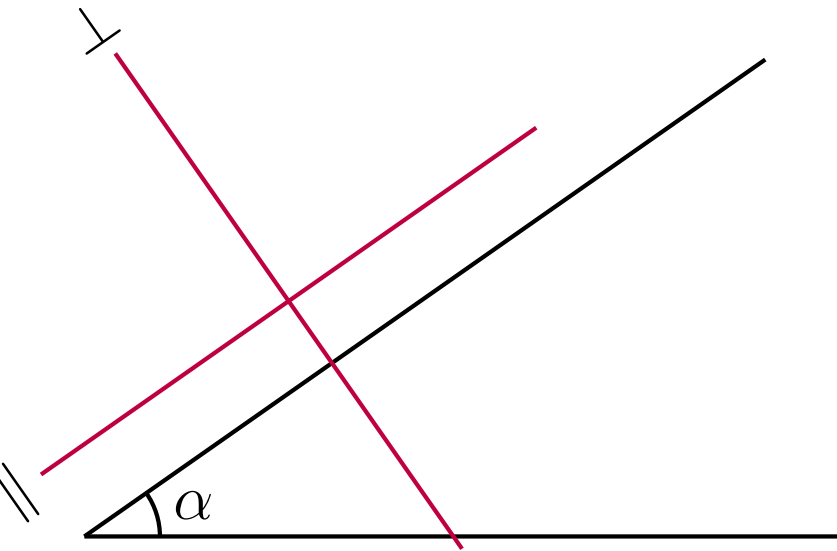
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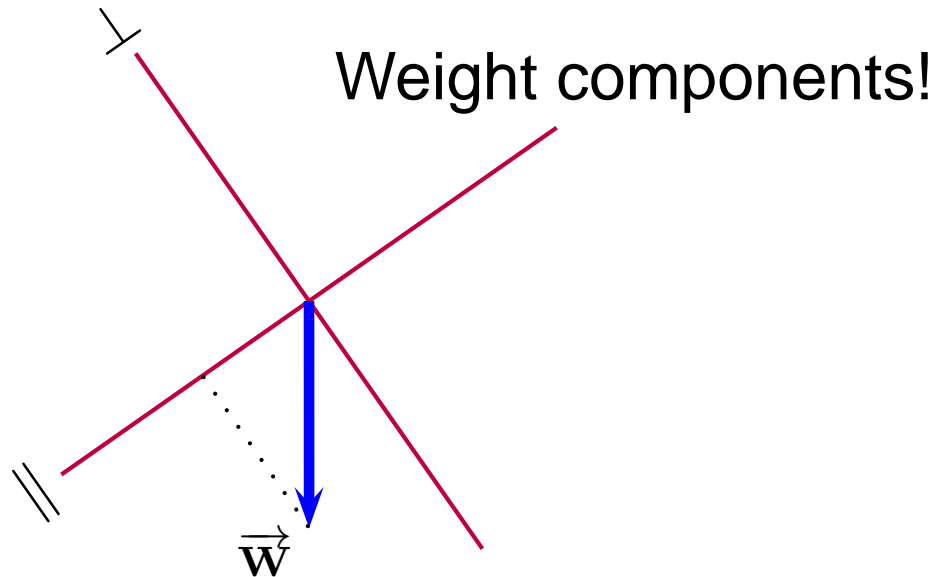
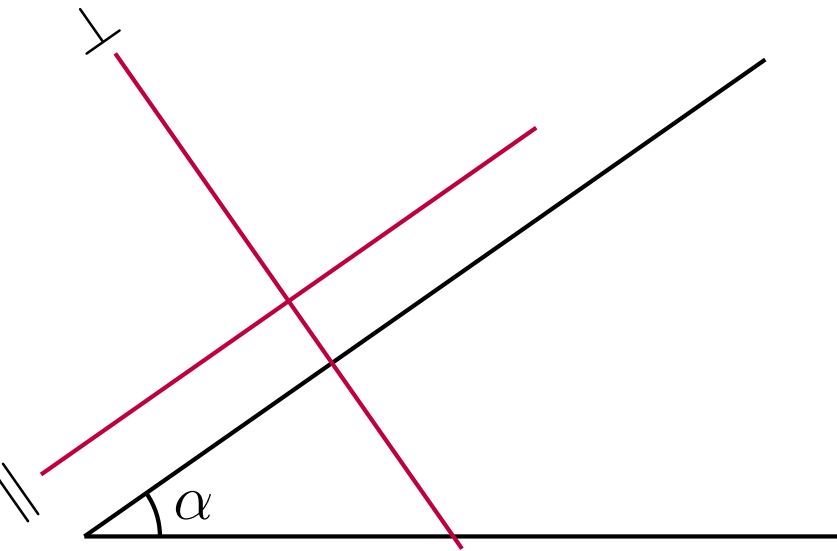
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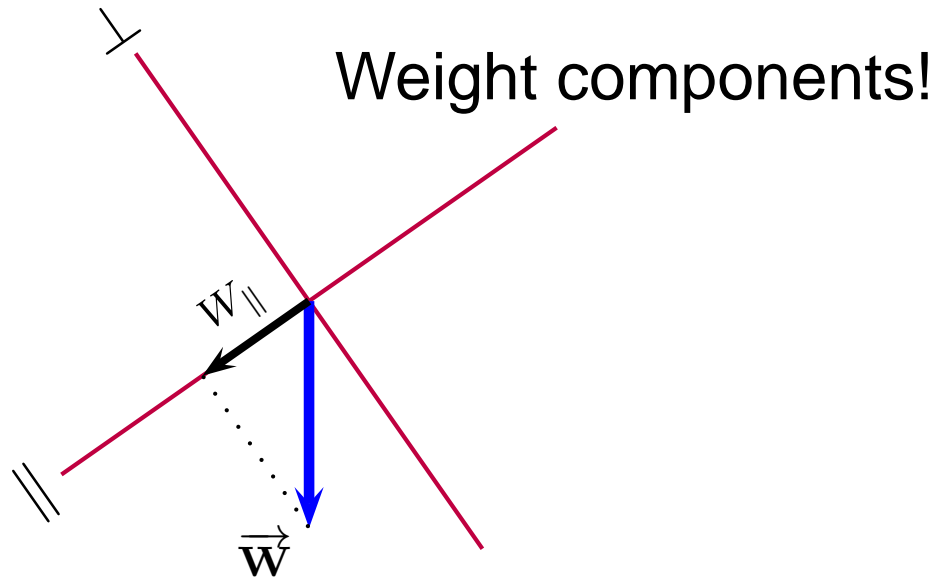
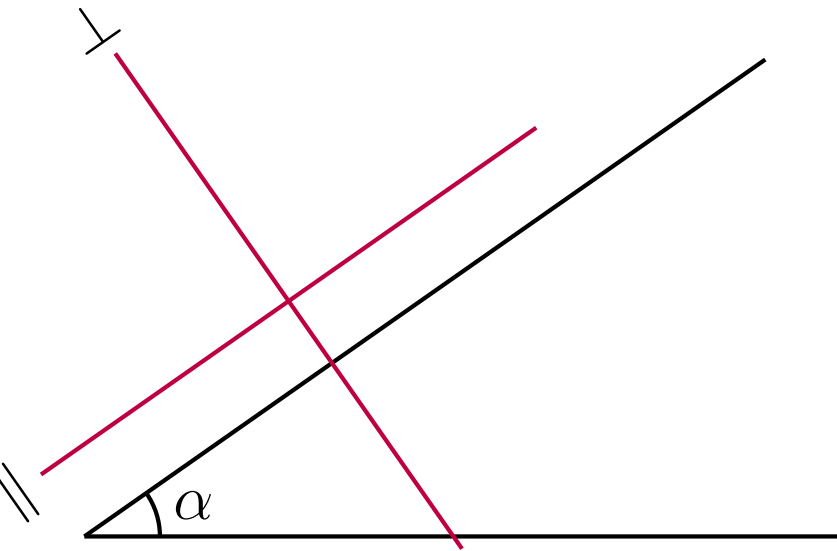
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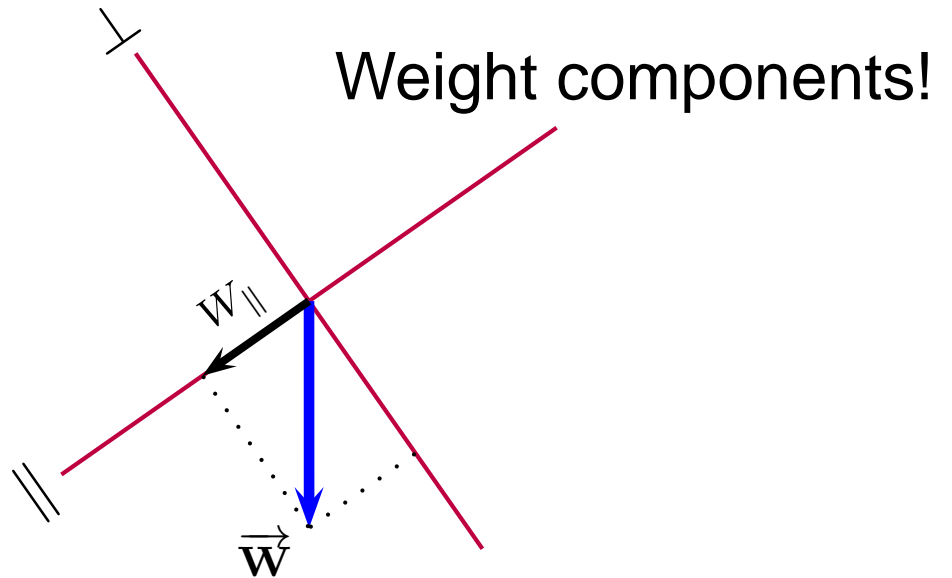
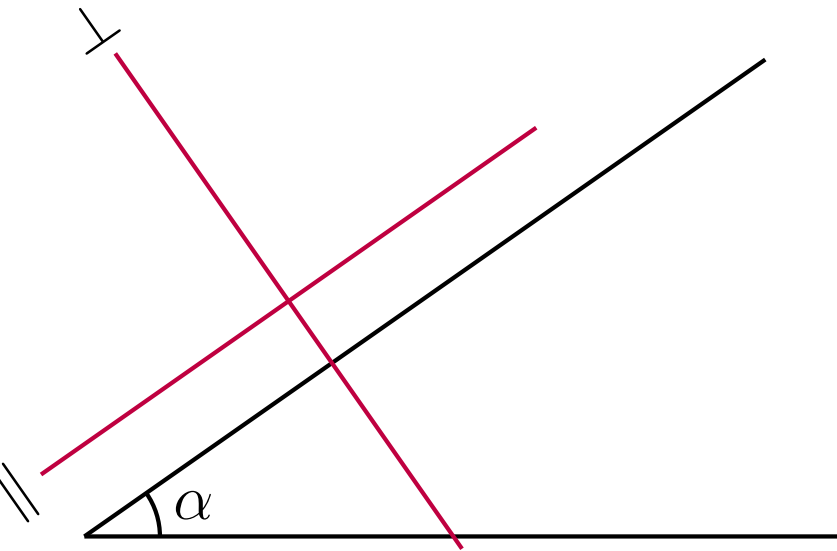
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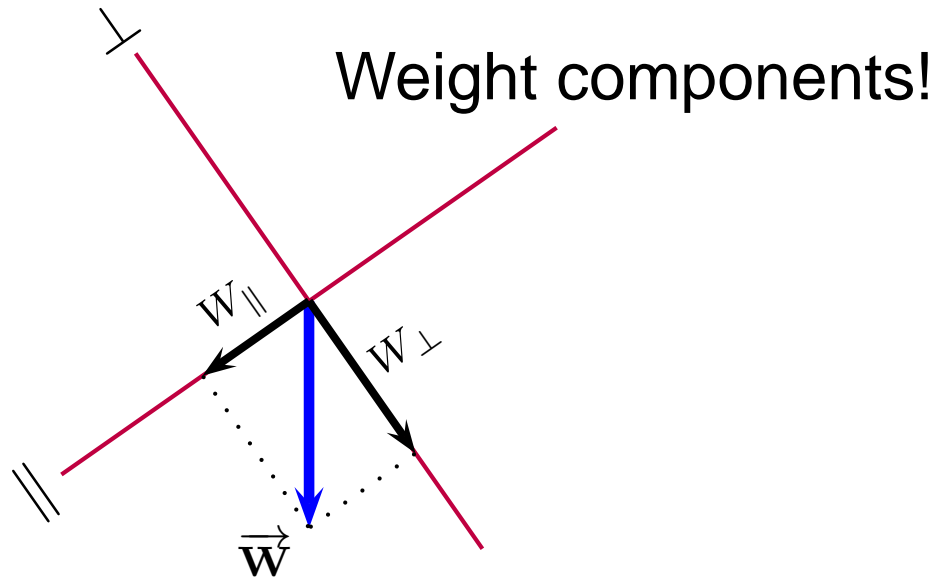
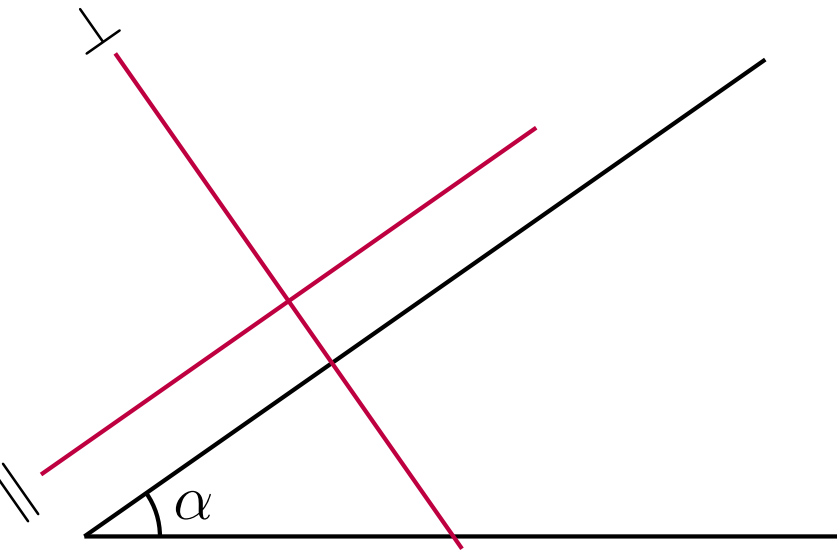
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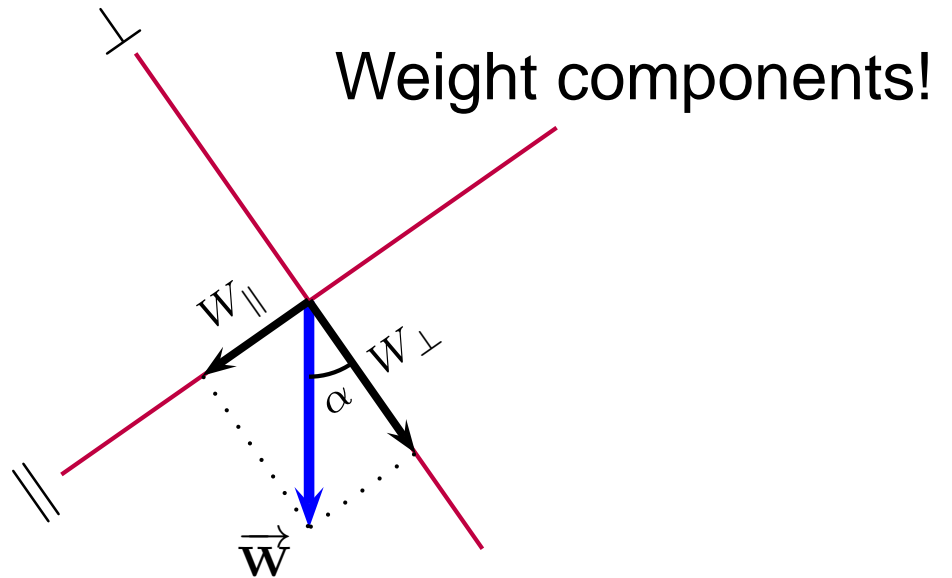
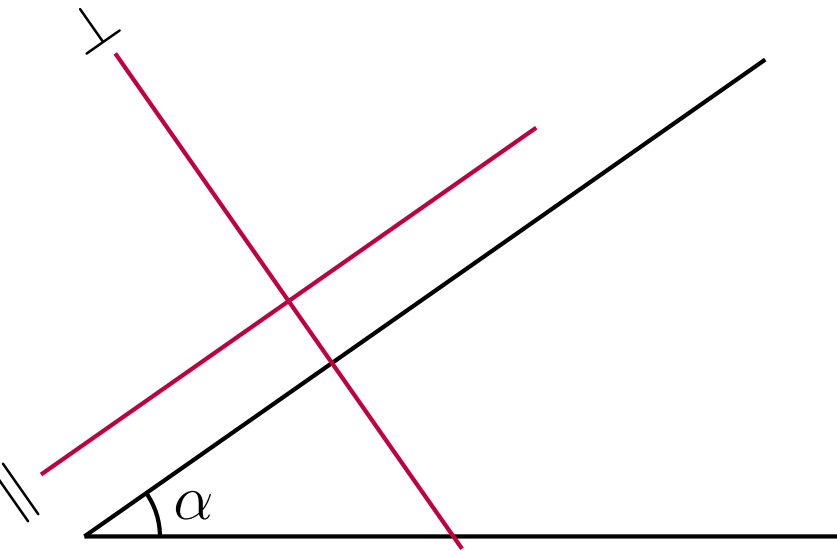
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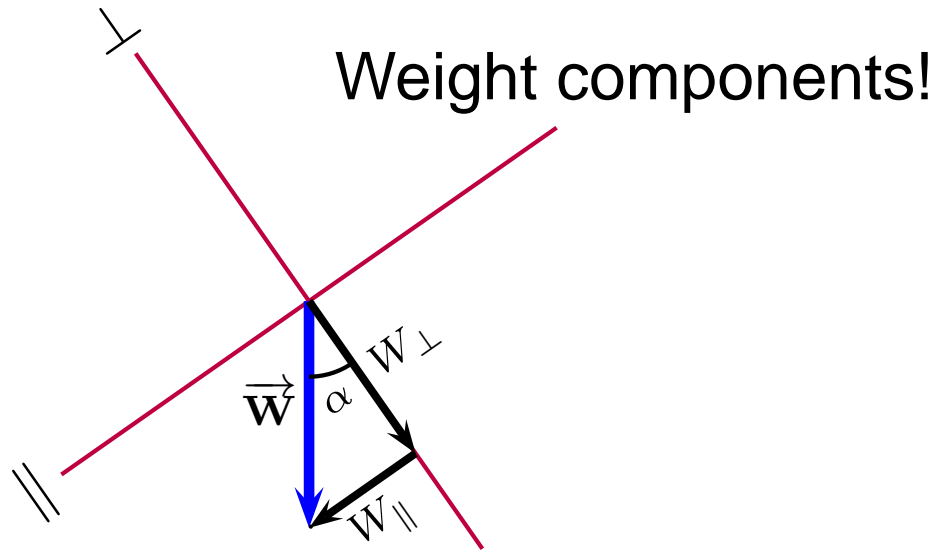
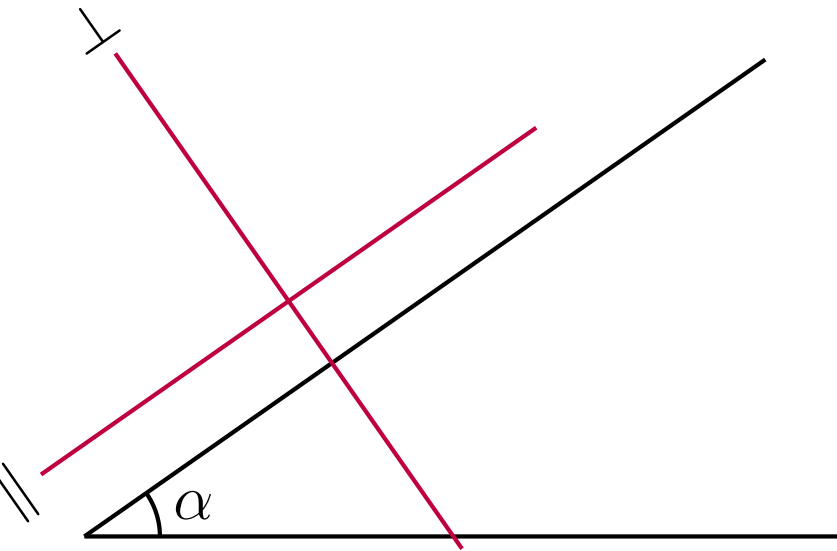
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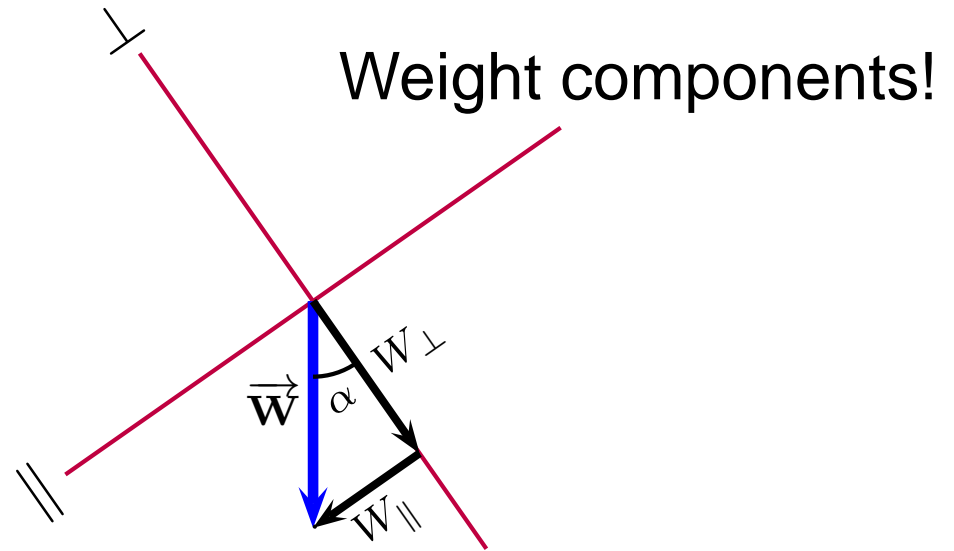
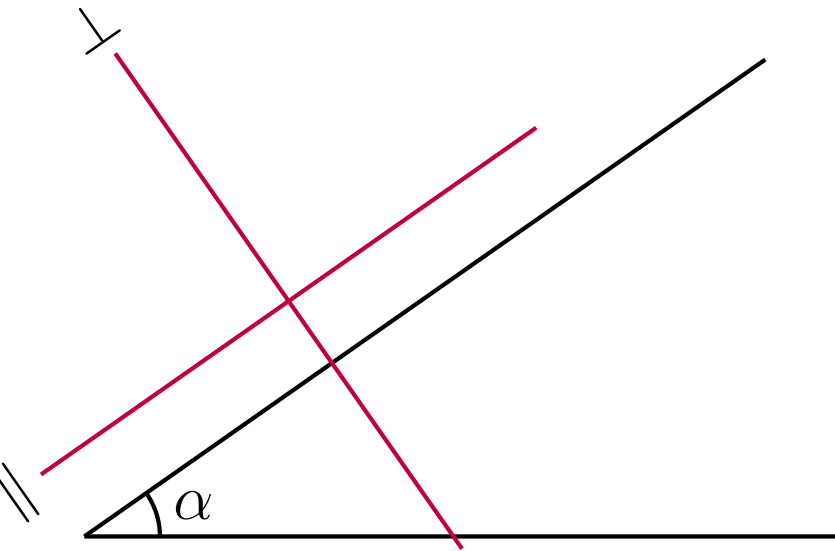
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$$W_{\parallel} = W \sin \alpha = Mg \sin \alpha$$

$$W_{\perp} = W \cos \alpha = Mg \cos \alpha$$