Ti*k*Z Diagrams

Tamas Kis

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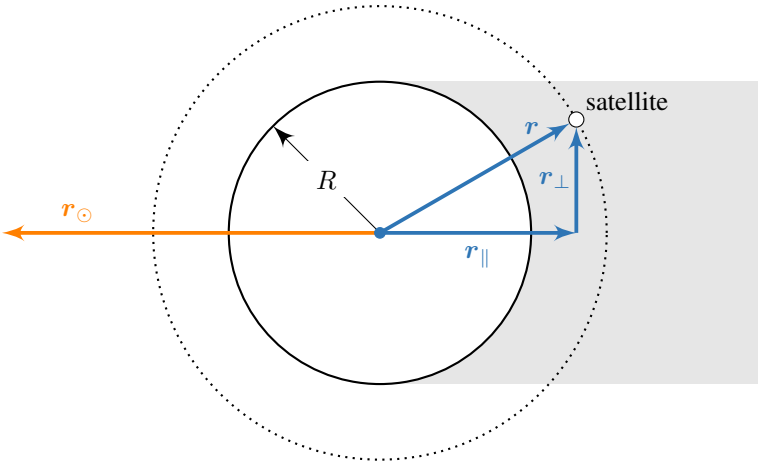
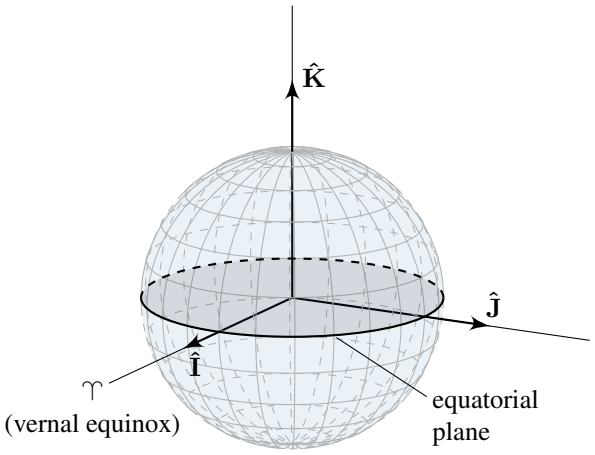
1 aerospace

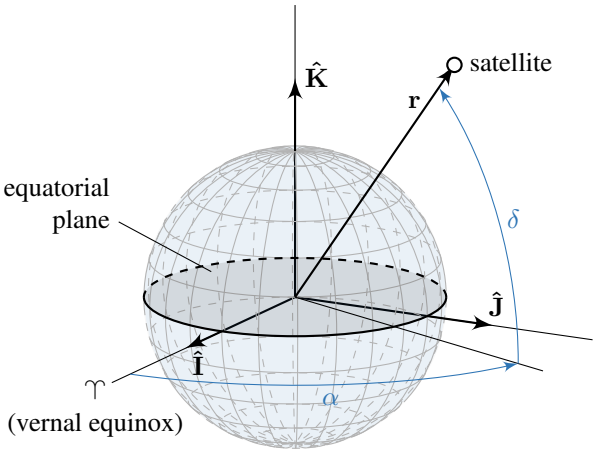
1.1 cylindrical_eclipse_model



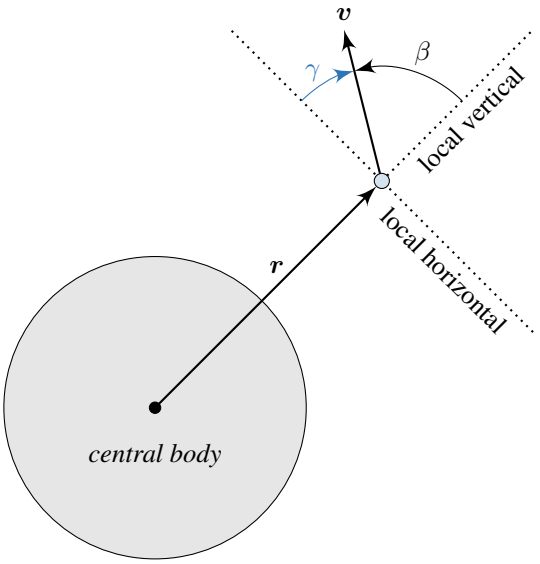
1.2 earth_centered_inertial_coordinate_frame



1.3 `geocentric_right_ascension_and_declination`



1.4 `geometry_of_the_flight_path_angle`



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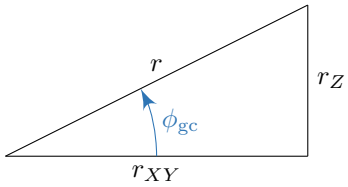

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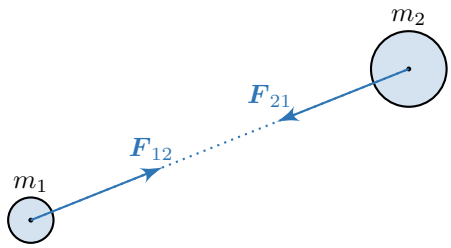

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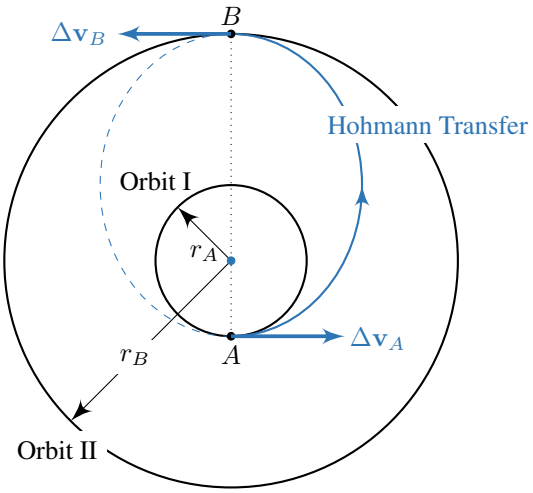

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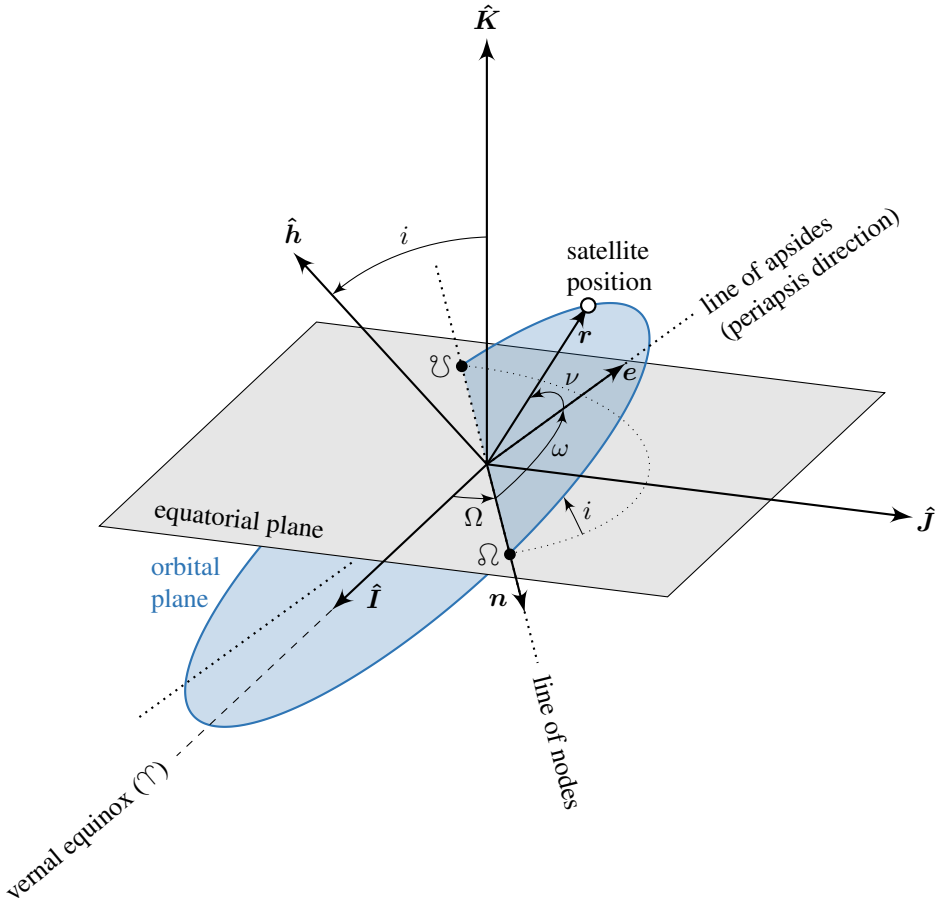
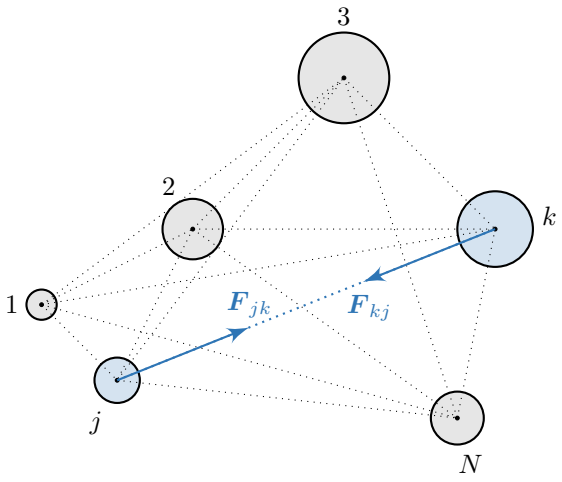
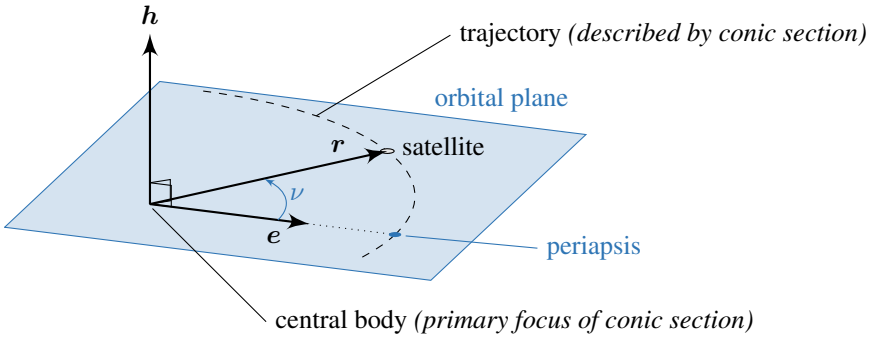


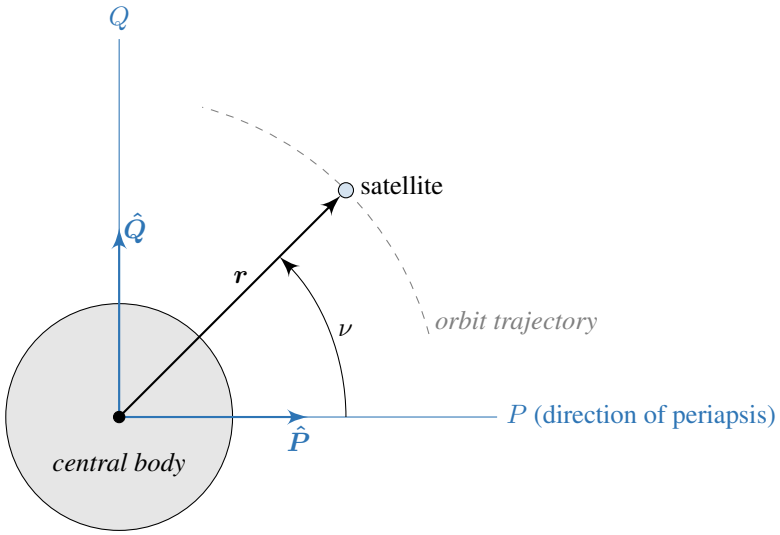
1.9 `n_body_problem`



1.10 `orbital_plane`



1.11 `perifocal_frame`



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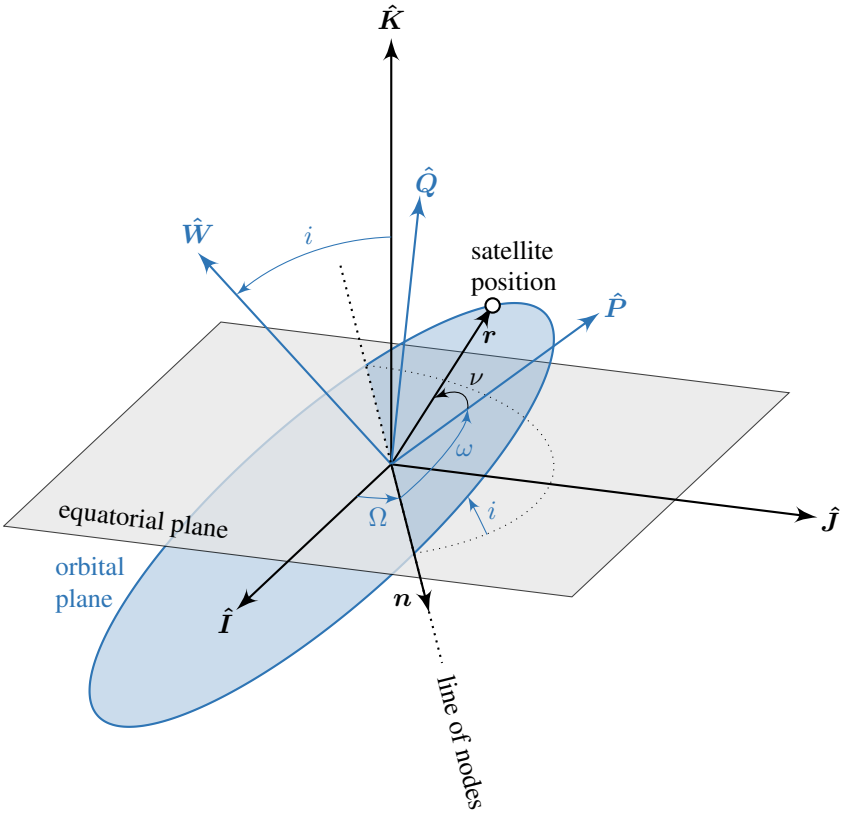
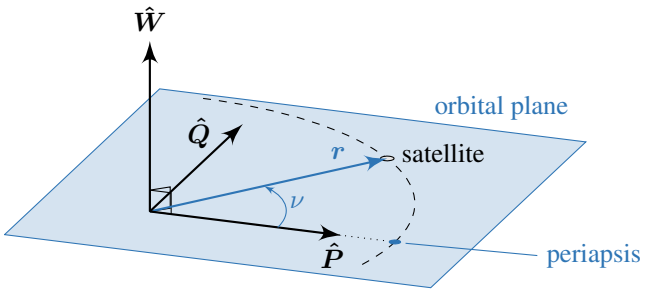
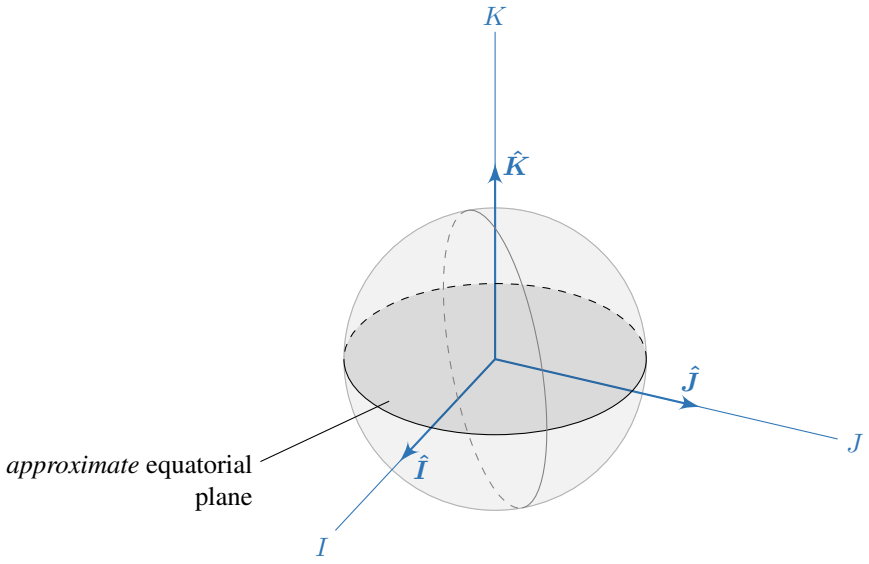


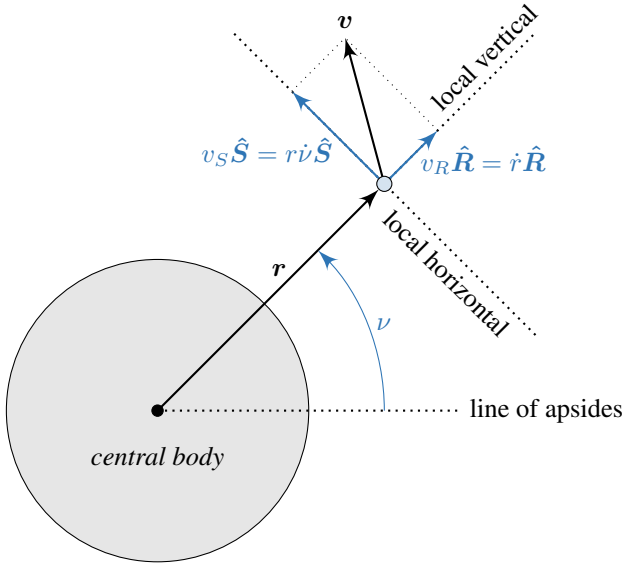
1.13 perifocal_frame_on_the_orbital_plane



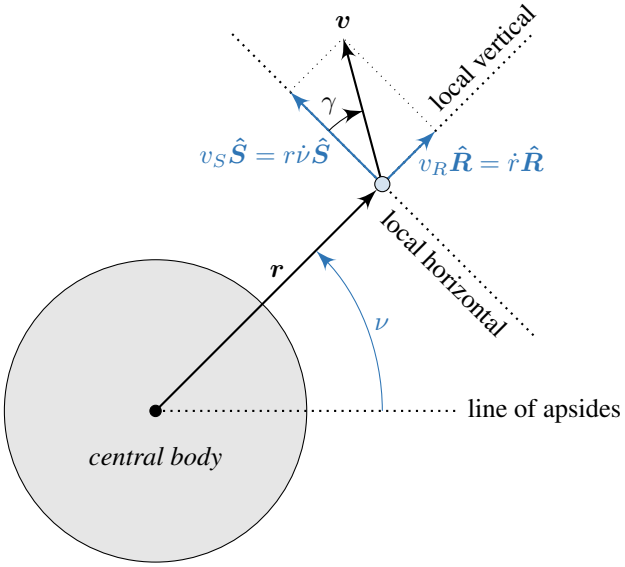
1.14 `planet_centered_inertial_pci_frame`



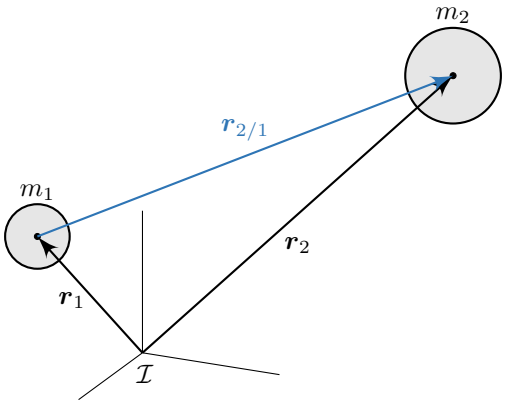
1.15 `radial_and_along_track_velocity_components`



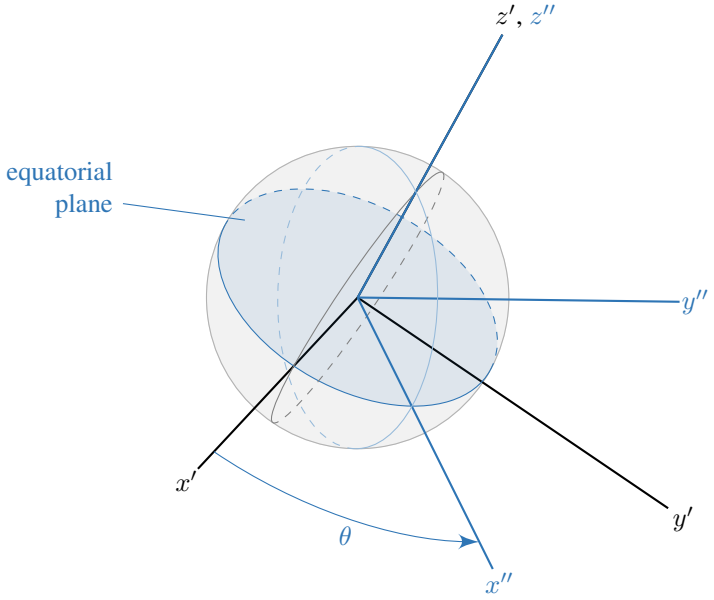
1.16 radial_and_along_track_velocity_components_with_flight_path_angle



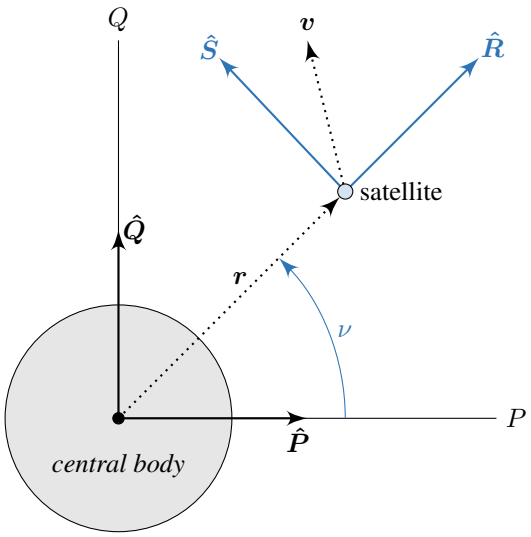
1.17 relative_position_of_bodies



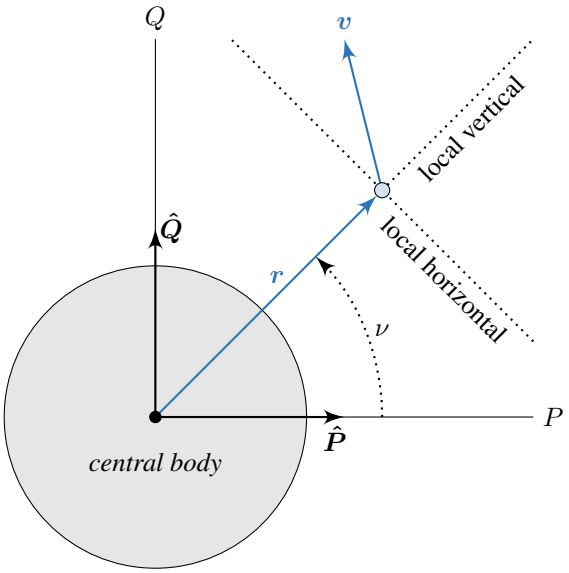
1.18 `rotation_of_a_celestial_body`



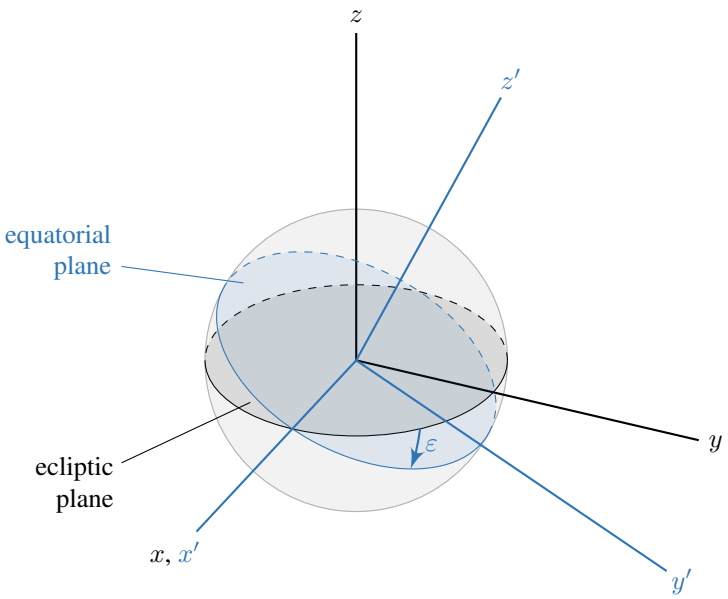
1.19 `rsw_and_perifocal_frames`



1.20 satellite_position_and_velocity

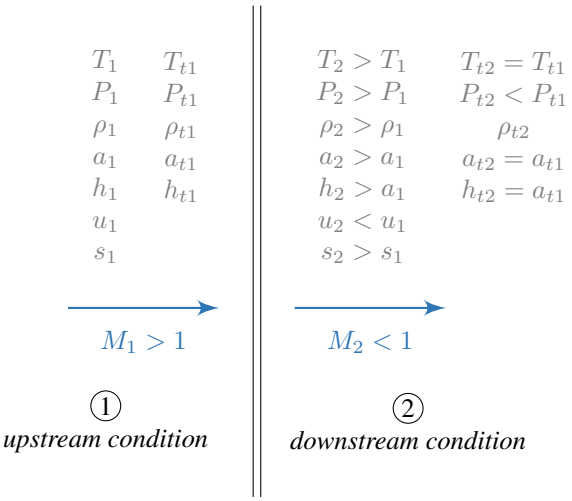


1.21 tilt_of_a_celestial_body



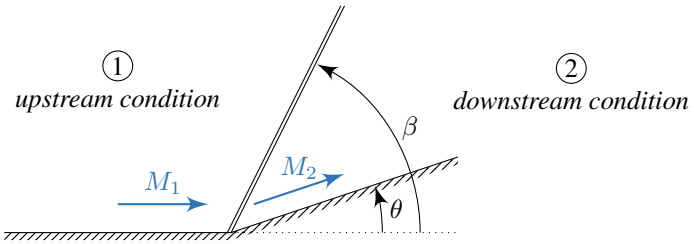
2 compressible_flow

2.1 normal_shock



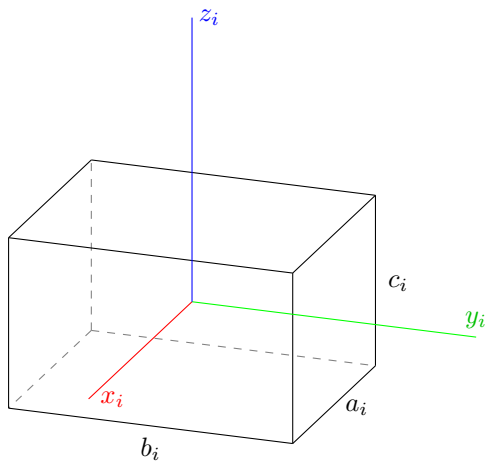
normal shock

2.2 oblique_shock

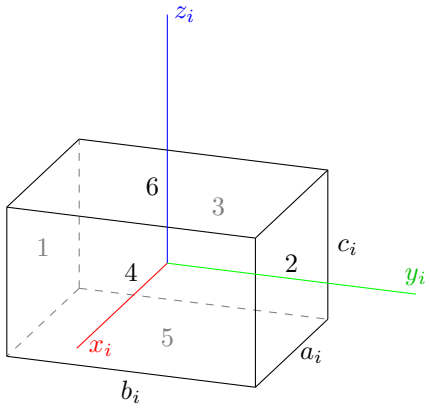


3 geometric_and_inertial_modeling

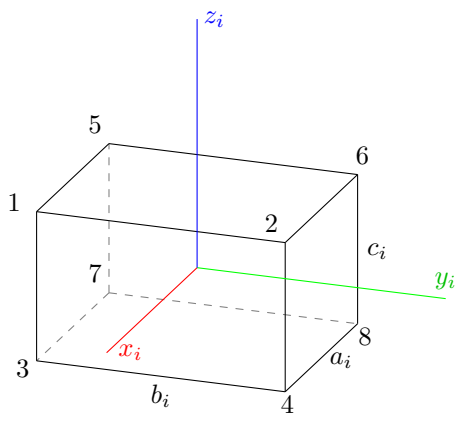
3.1 body_axes_of_a_rectangular_prism



3.2 rectangular_prism_face_numbering_convention

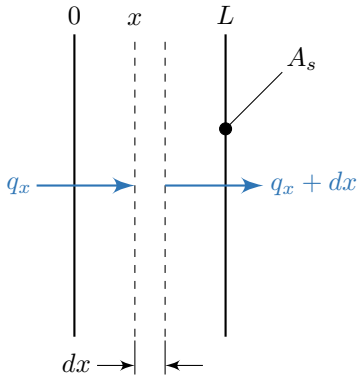


3.3 rectangular_prism_vertex_numbering_convention



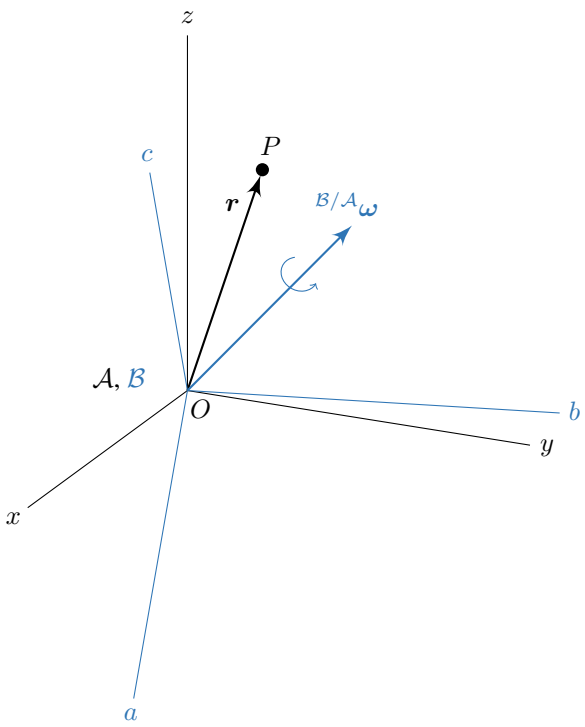
4 heat_transfer

4.1 heat_conduction_through_a_flat_plate

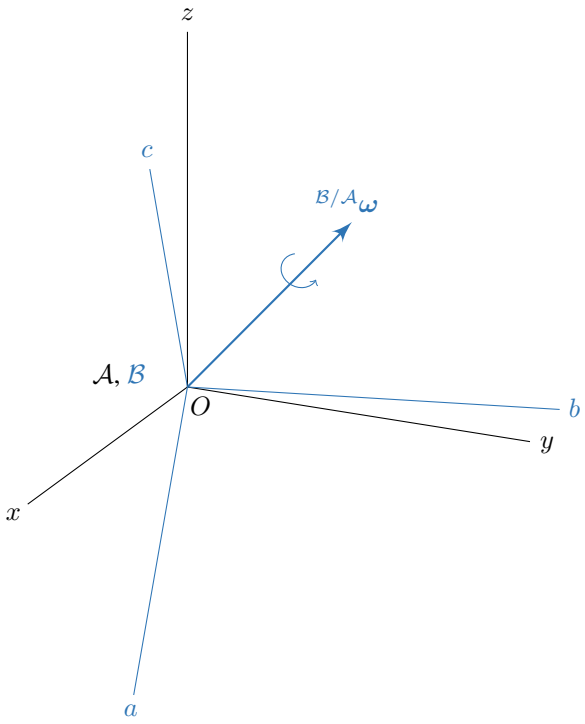


5 kinematics

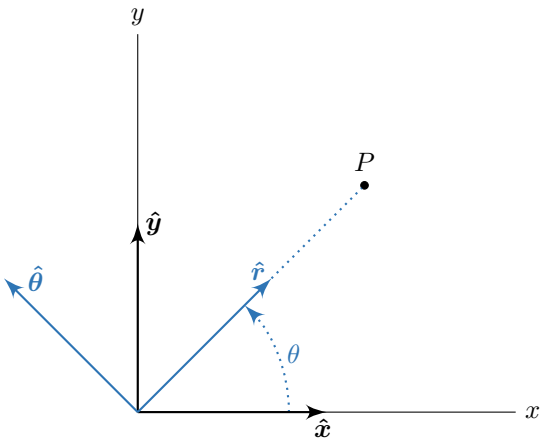
5.1 absolute_kinematics



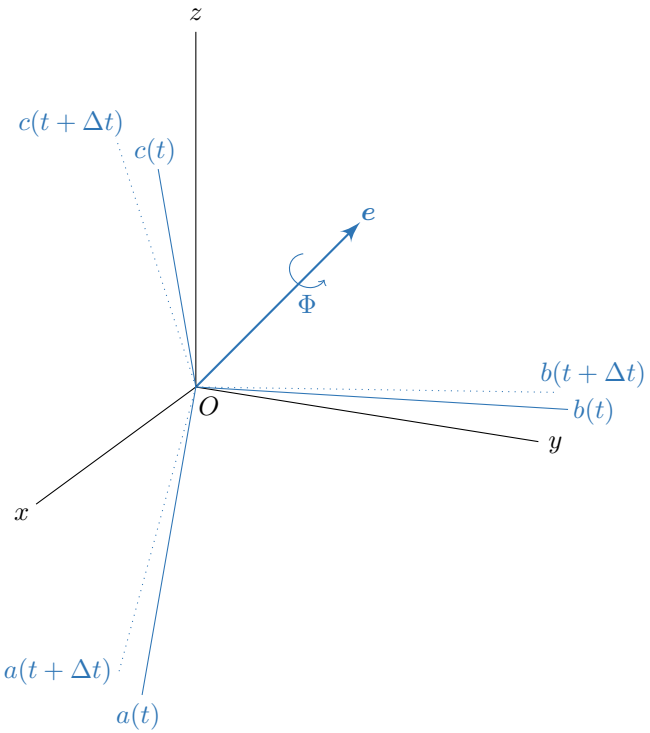
5.2 angular_velocity



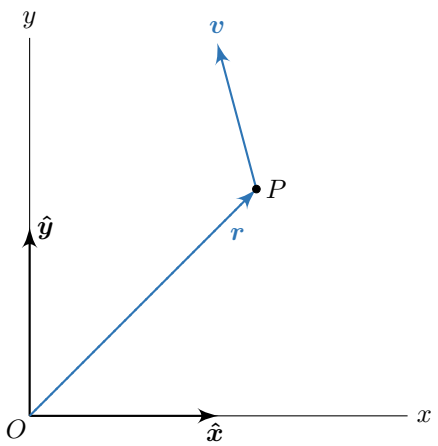
5.3 coordinate_frame_definitions_for_polar_coordinates



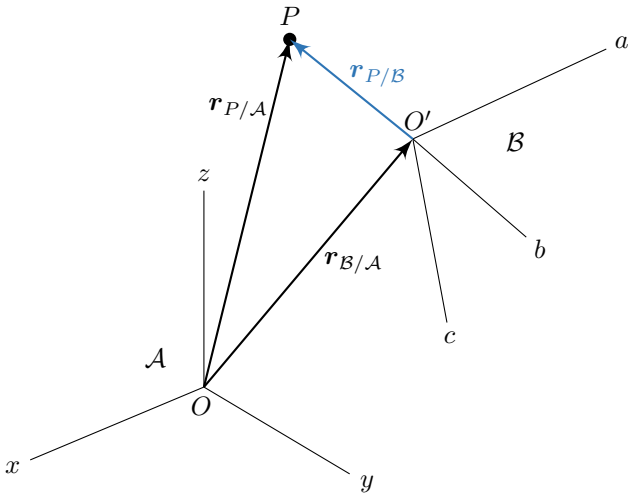
5.4 instantaneous_axis_of_rotation



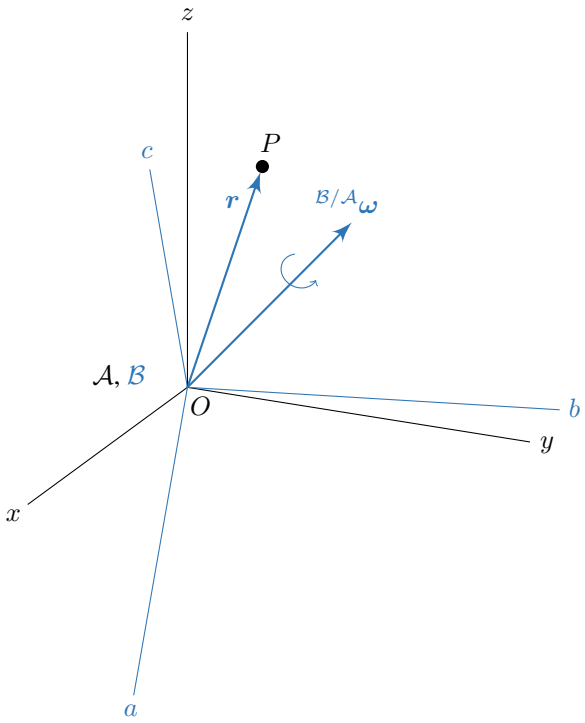
5.5 instantaneous_plane_of_motion



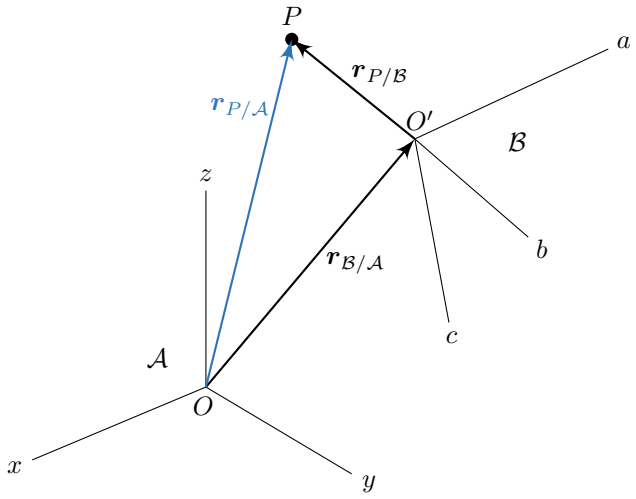
5.6 kinematics_in_a_moving_frame



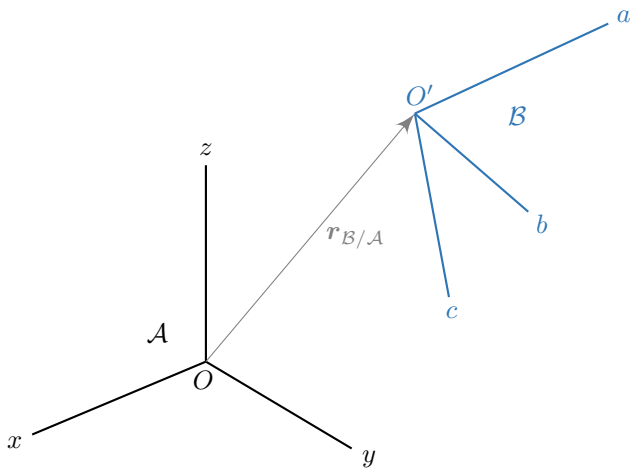
5.7 kinematics_in_a_rotating_frame



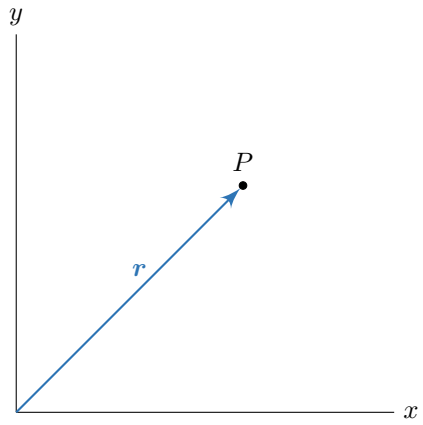
5.8 kinematics_in_a_stationary_frame



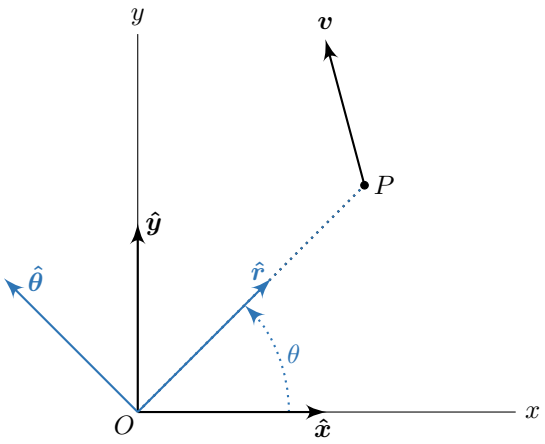
5.9 moving_frame



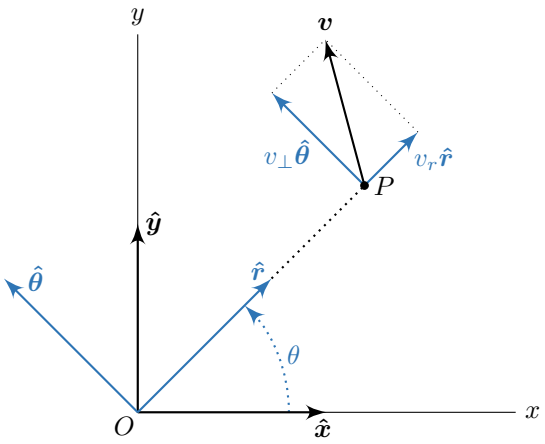
5.10 particle_in_the_xy_plane



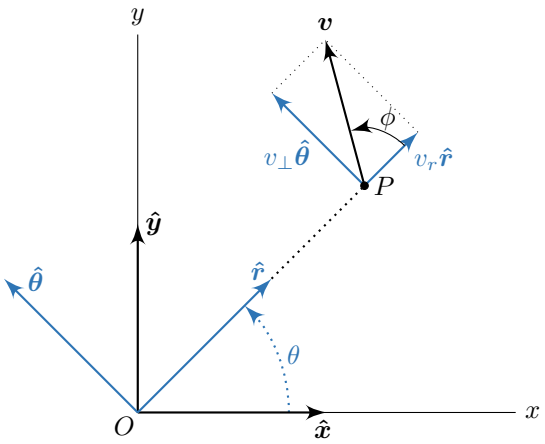
5.11 polar_coordinates_of_the_instantaneous_motion



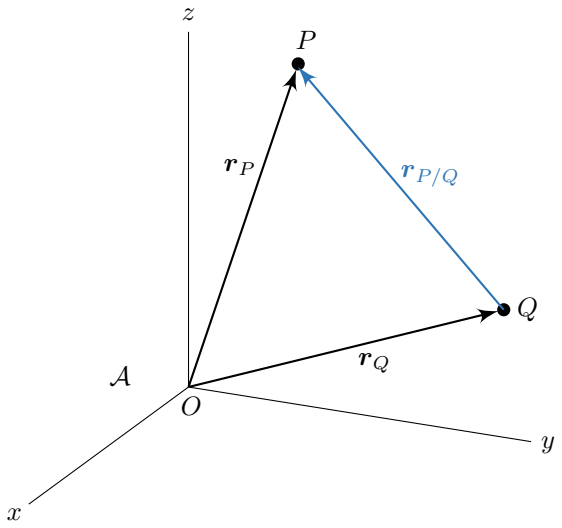
5.12 radial_and_transverse_velocity_components



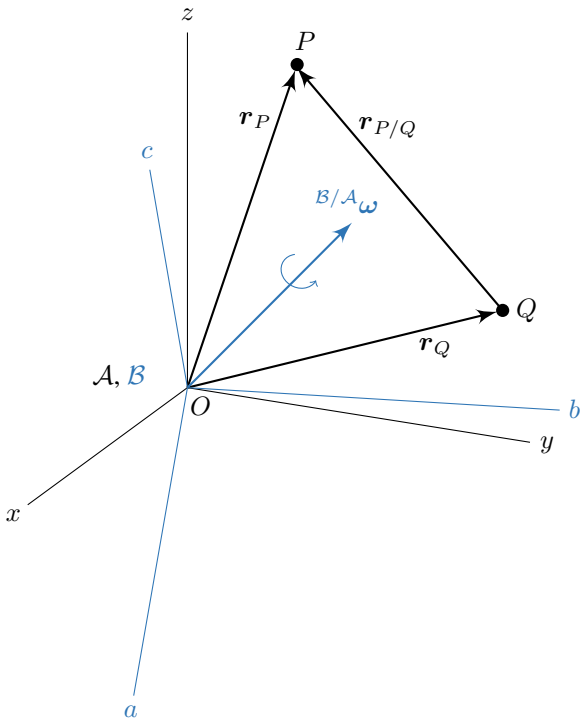
5.13 radial_and_transverse_velocity_components_with_an_auxiliary_angle



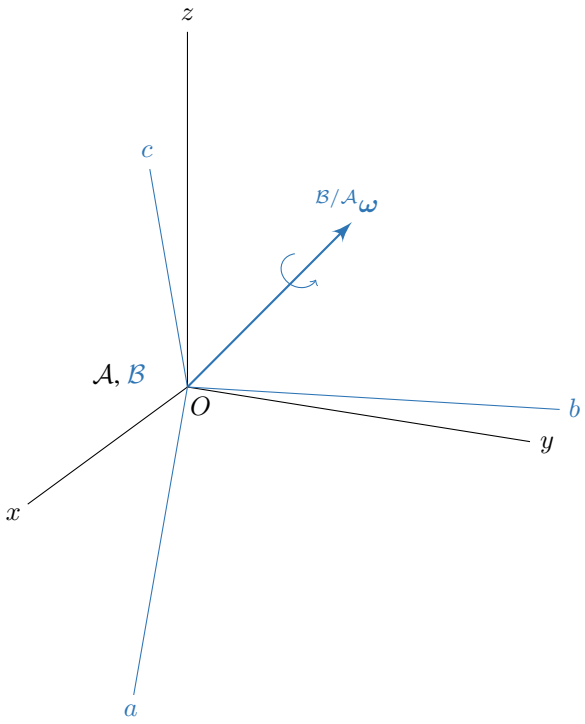
5.14 relative_kinematics



5.15 relative_kinematics_with_multiple_coordinate_frames

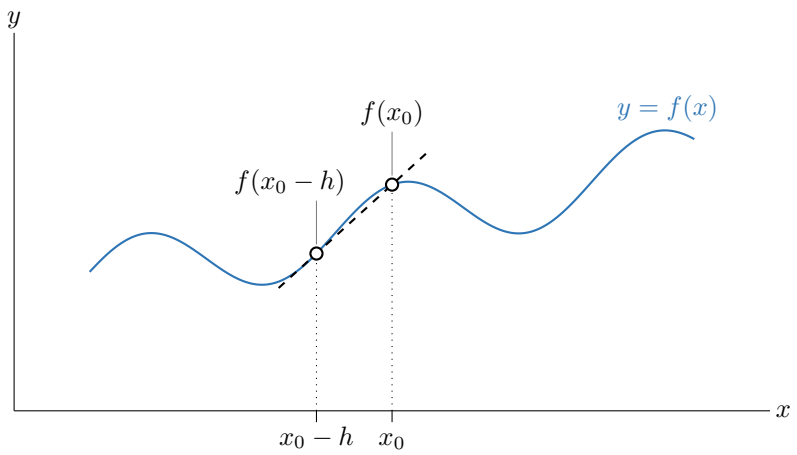


5.16 rotating_frame

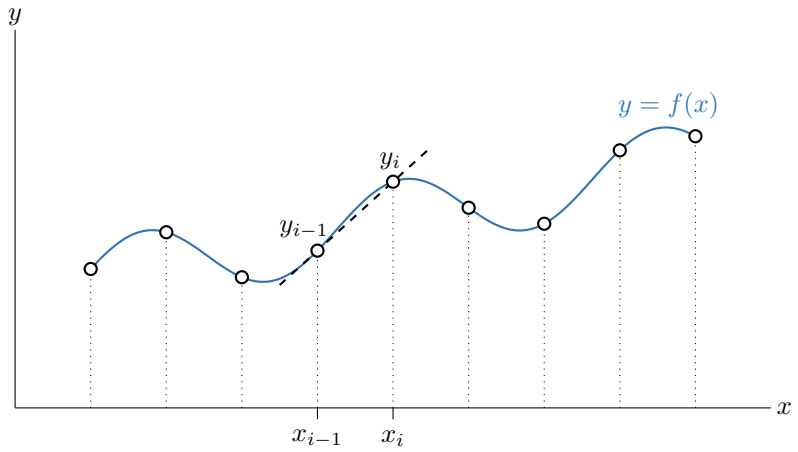


6 numerical_math

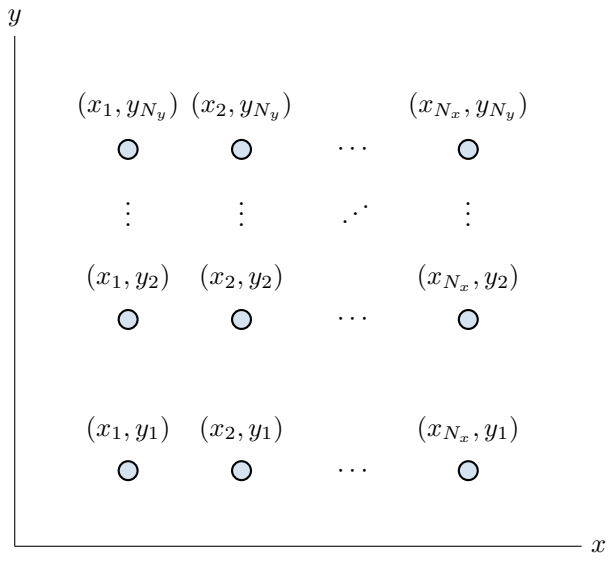
6.1 backward_difference_approximation_v1



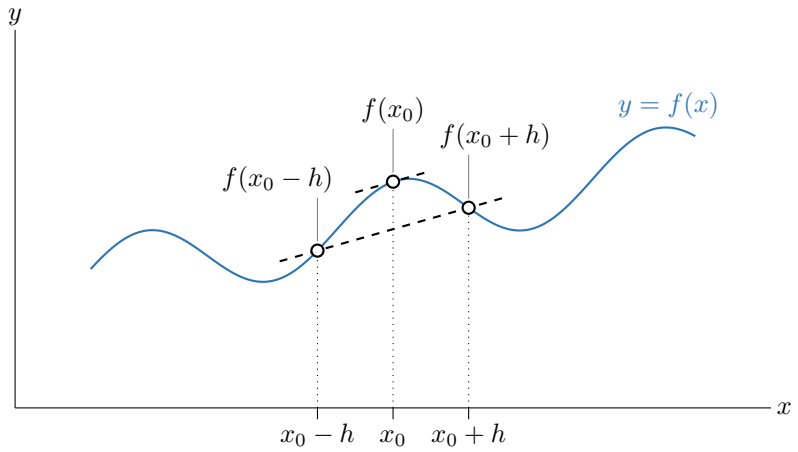
6.2 backward_difference_approximation_v2



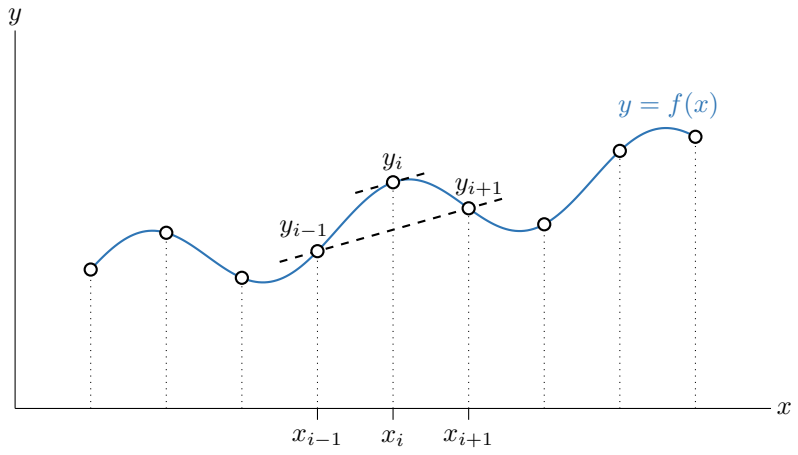
6.3 bivariate_grid



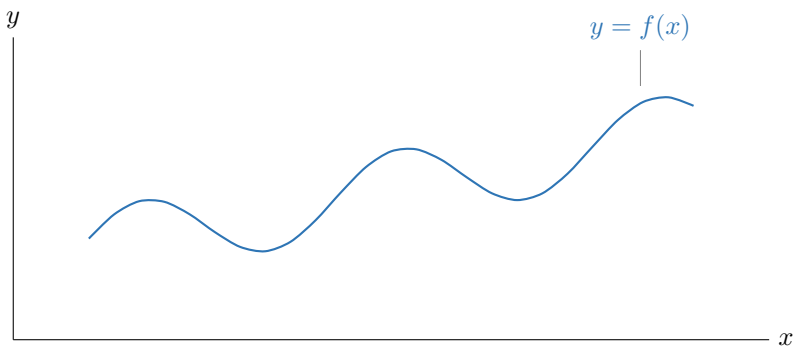
6.4 central_difference_approximation_v1



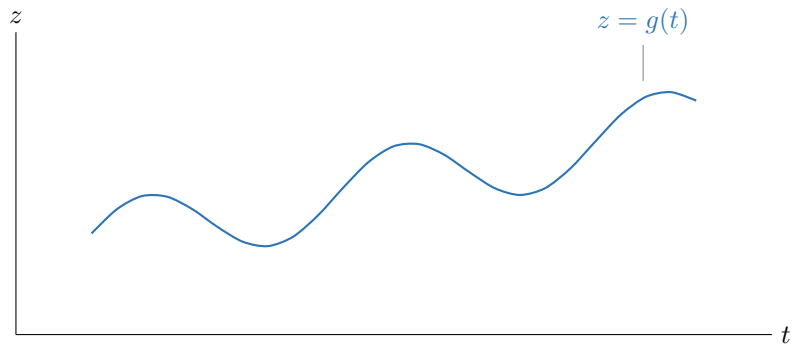
6.5 central_difference_approximation_v2



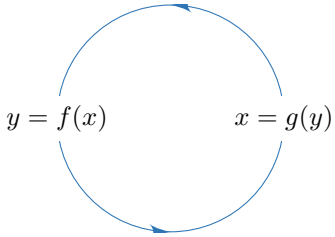
6.6 `continuous_function`



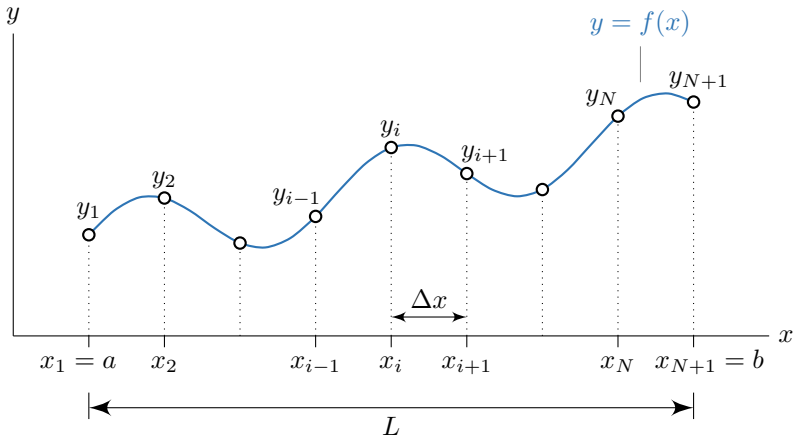
6.7 `continuous_time_function`



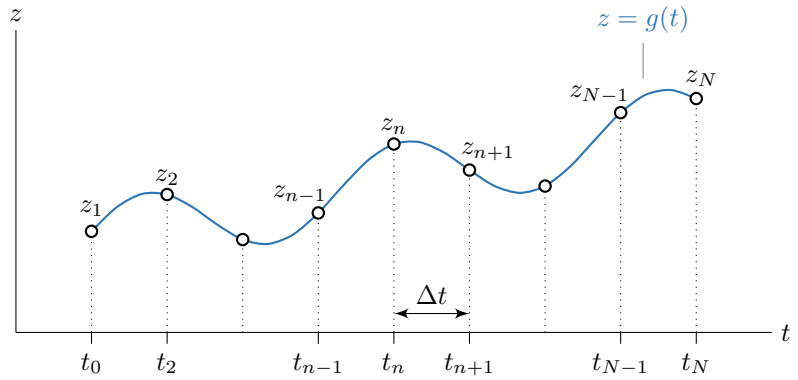
6.8 convergent_loop



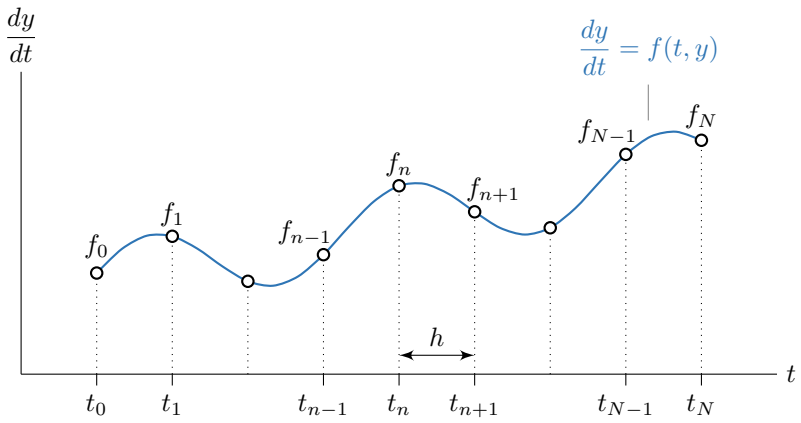
6.9 discretization_of_a_continuous_function



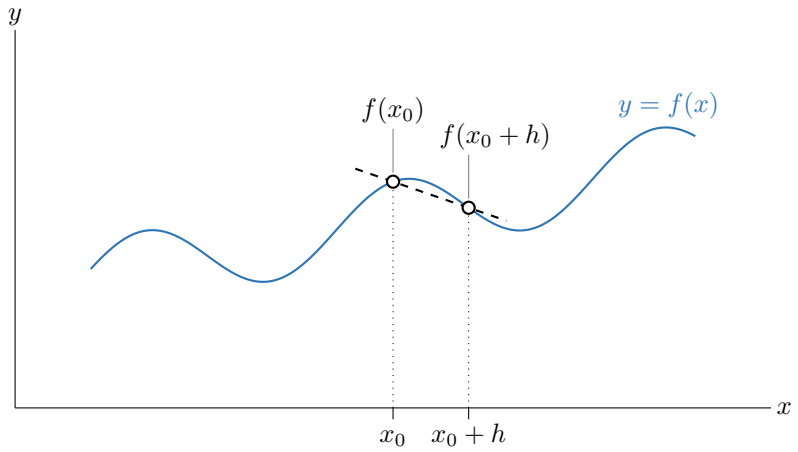
6.10 discretization_of_a_continuous_time_function



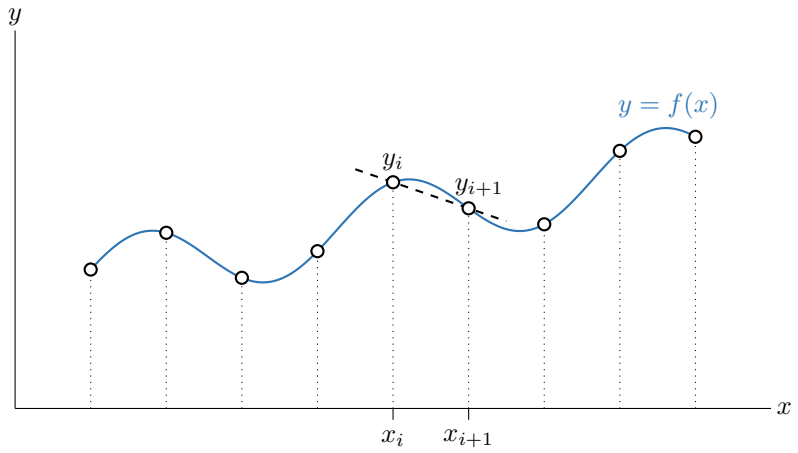
6.11 discretization_of_an_ODE_in_time



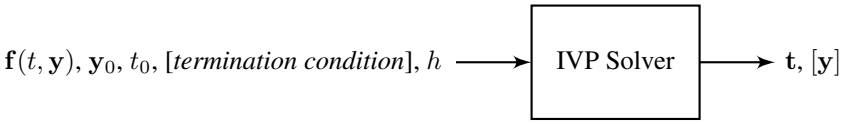
6.12 forward_difference_approximation_v1



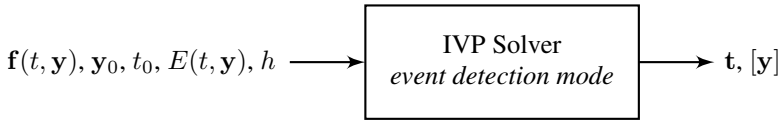
6.13 forward_difference_approximation_v2



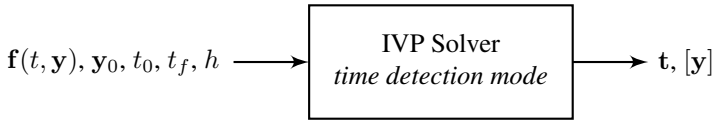
6.14 `ivp_solver_block_diagram`



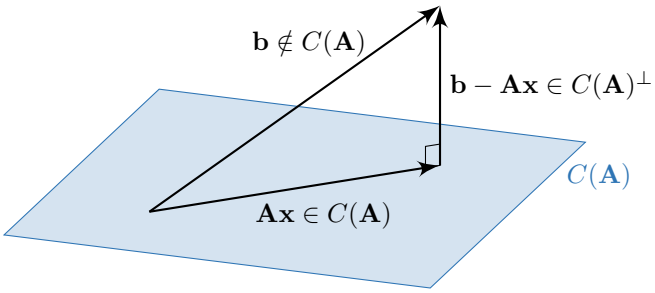
6.15 `ivp_solver_block_diagram_event_detection_mode`



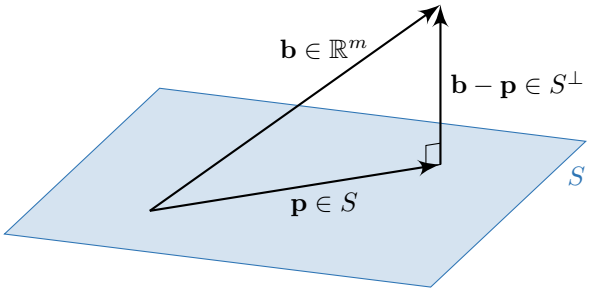
6.16 `ivp_solver_block_diagram_time_detection_mode`



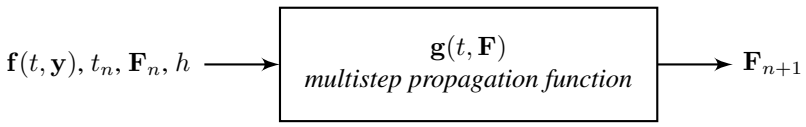
6.17 `least_squares_derivation_1`



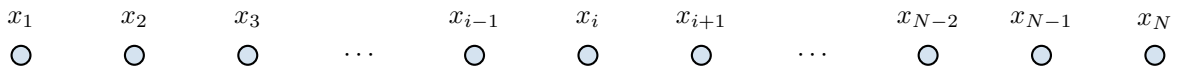
6.18 `least_squares_derivation_2`



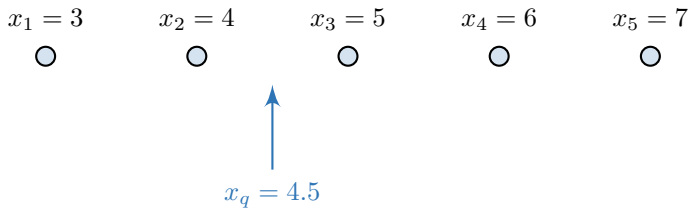
6.19 `multistep_propagation_function`



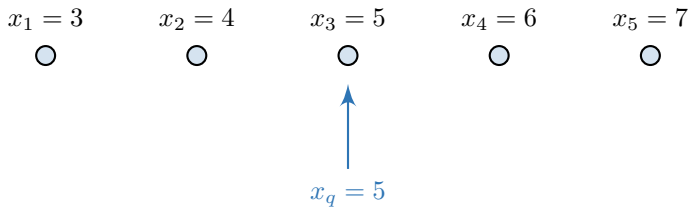
6.20 node_vector



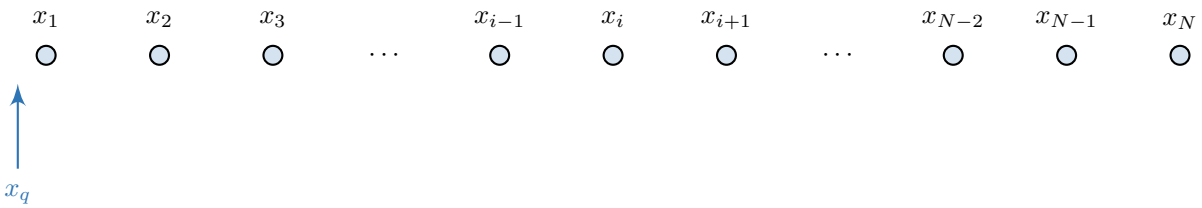
6.21 node_vector_example_v1



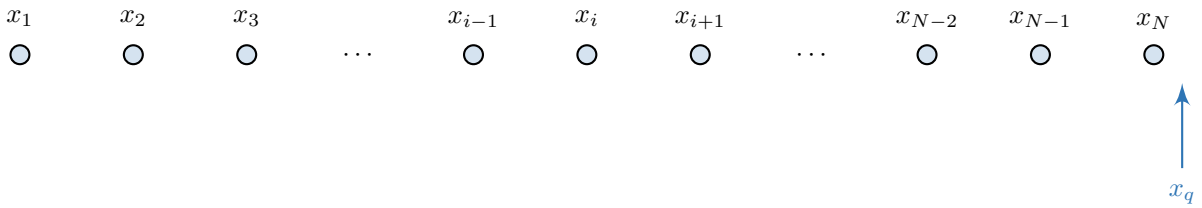
6.22 node_vector_example_v2



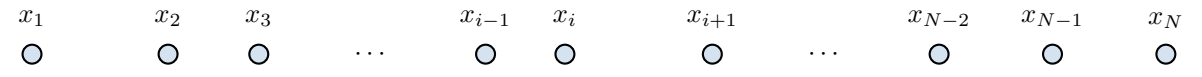
6.23 node_vector_query_special_case_1



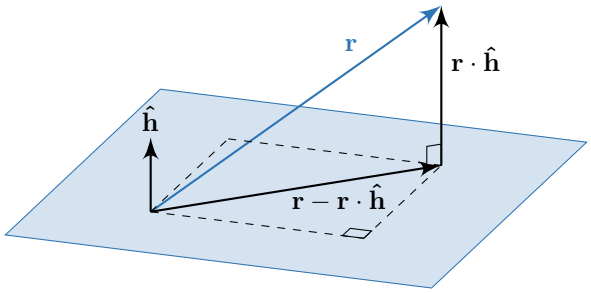
6.24 node_vector_query_special_case_2



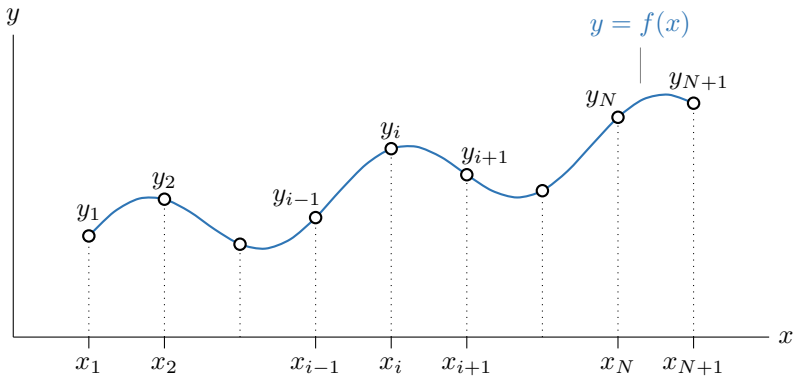
6.25 nonuniform_node_vector



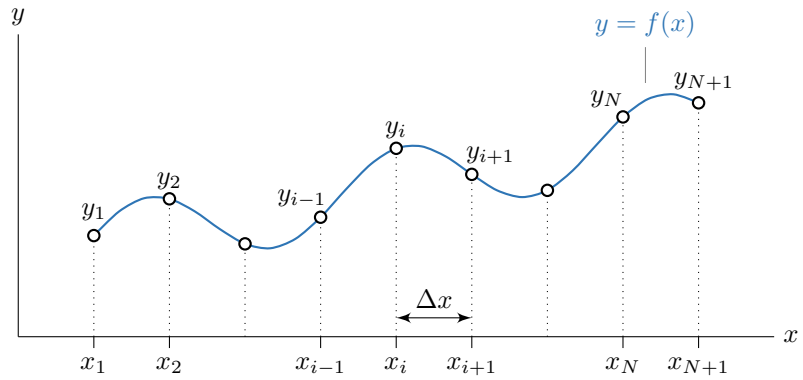
6.26 projection_onto_plane



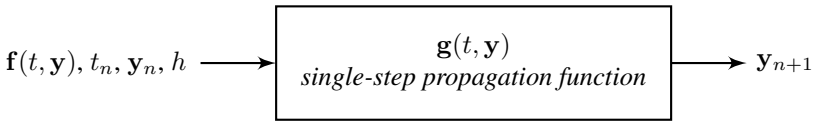
6.27 sampling_a_continuous_function_over_a_grid



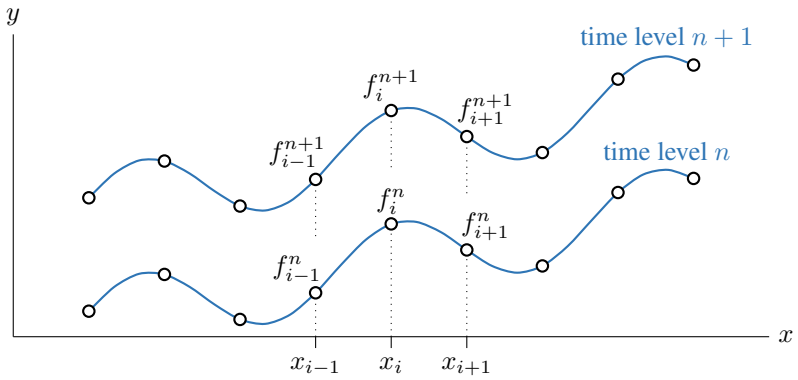
6.28 sampling_a_continuous_function_over_a_uniform_grid



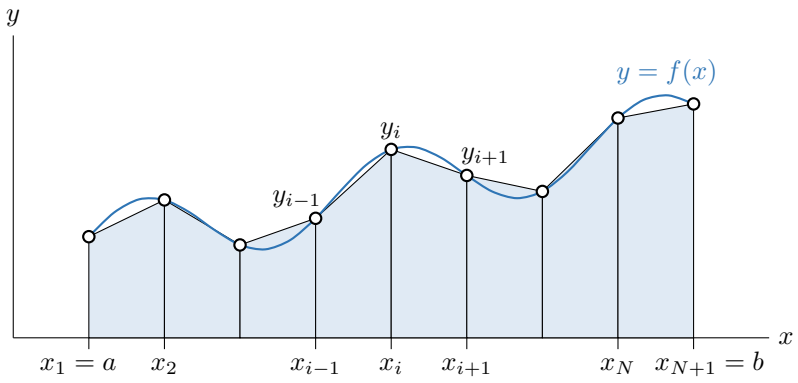
6.29 single_step_propagation_function



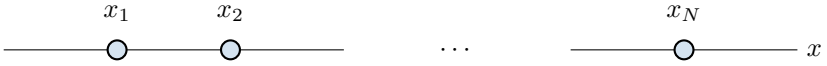
6.30 `time_levels`



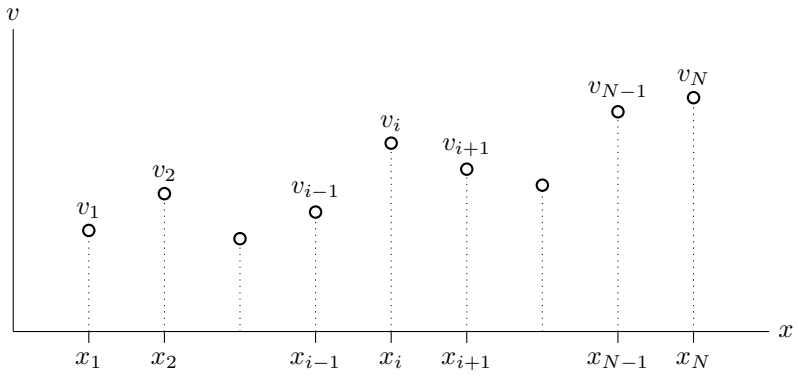
6.31 `trapezoidal_rule`



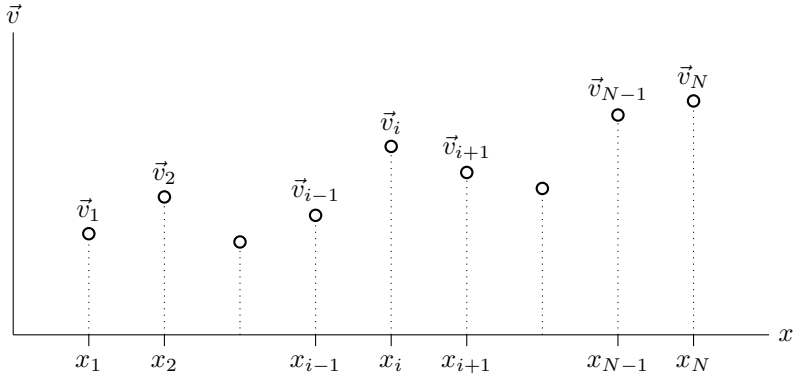
6.32 `univariate_grid`



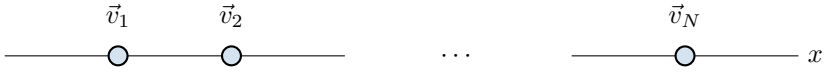
6.33 univariate_scalar_valued_data



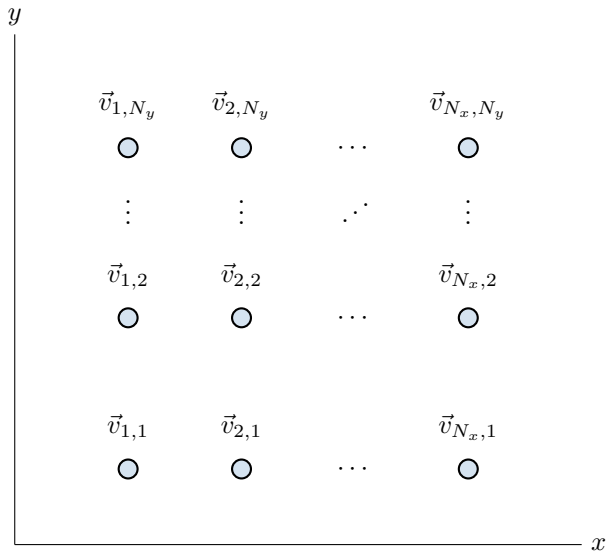
6.34 univariate_vector_valued_data



6.35 values_on_a_1D_grid

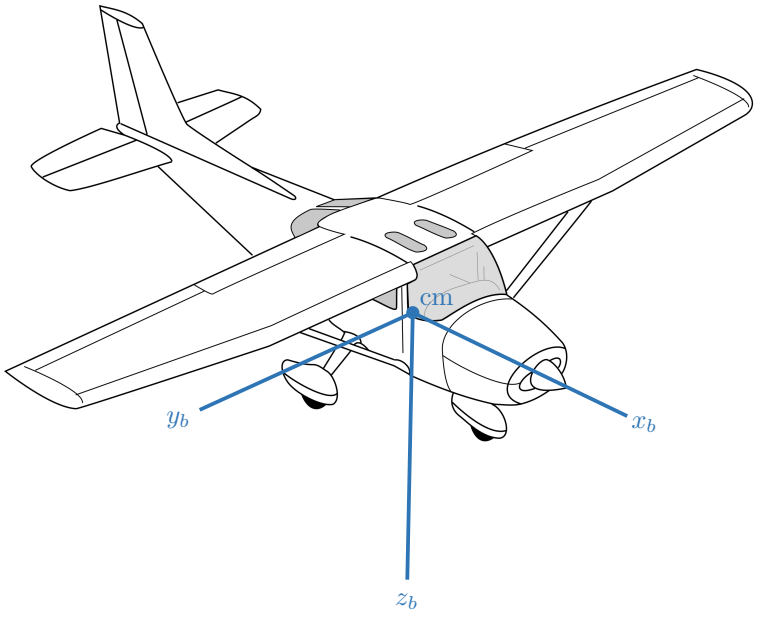


6.36 values_on_a_2D_grid

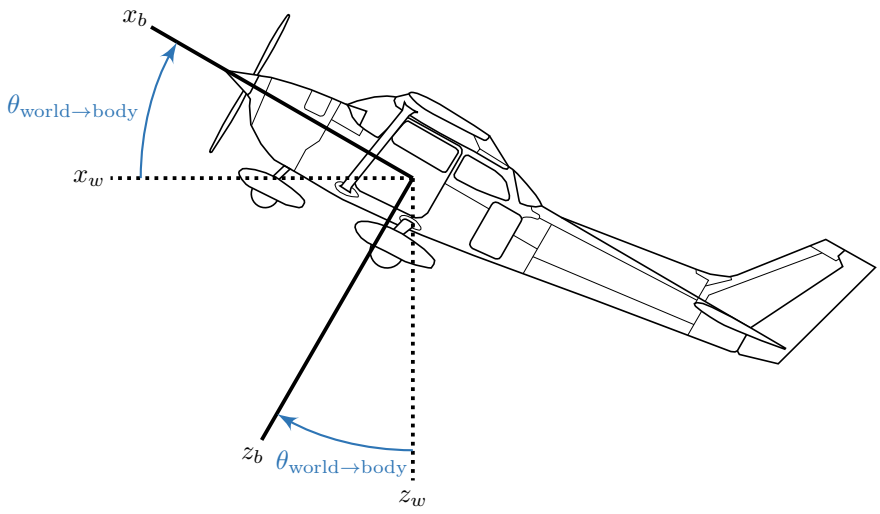


7 rotations_and_attitude

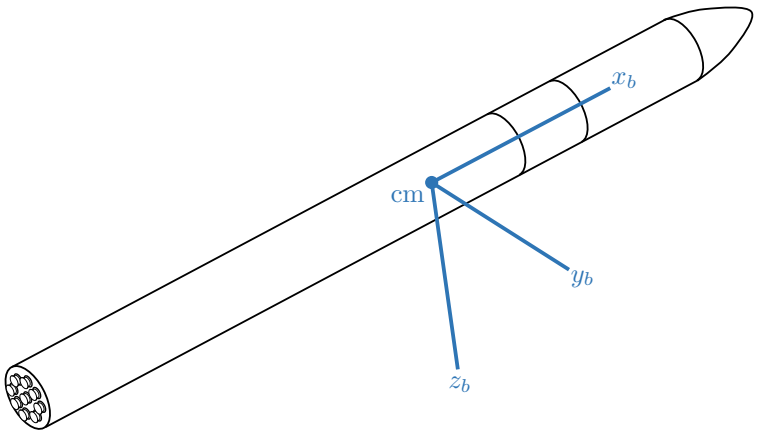
7.1 airplane_body_frame



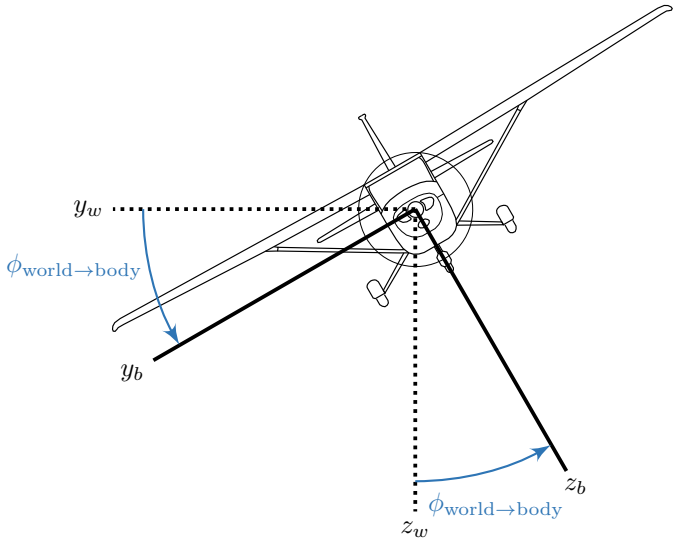
7.2 `pitch_angle`



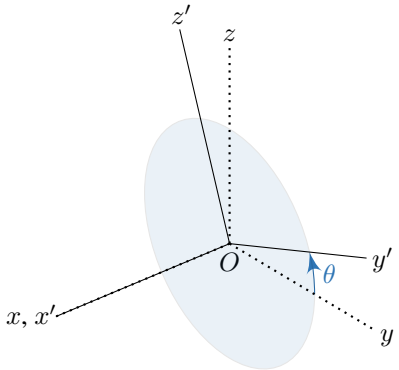
7.3 `rocket_body_frame`



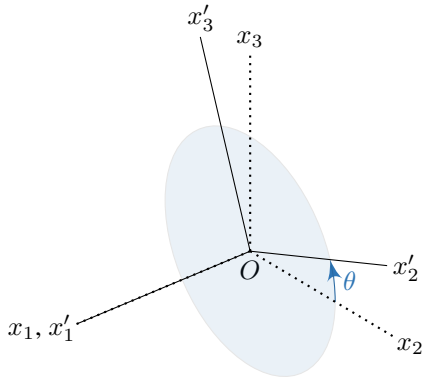
7.4 roll_angle



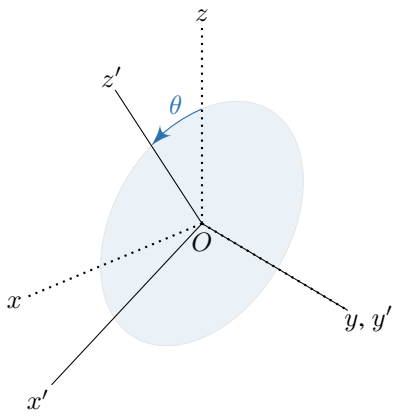
7.5 rotation_about_1st_axis_v1



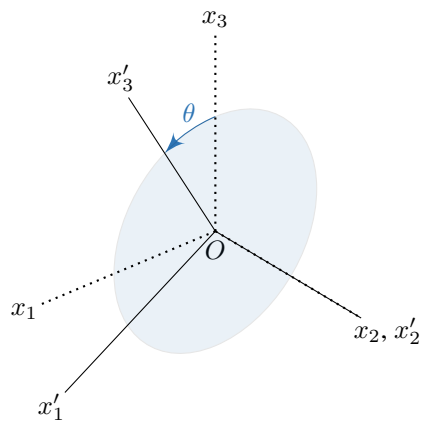
7.6 rotation_about_1st_axis_v2



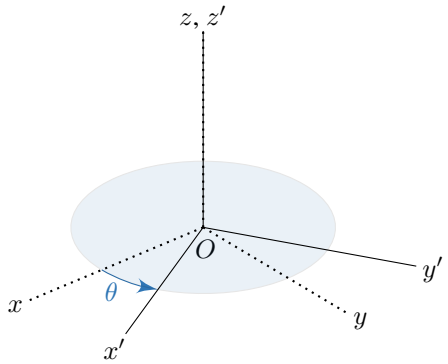
7.7 rotation_about_2nd_axis_v1



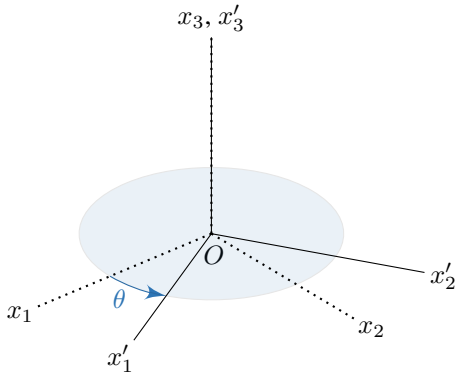
7.8 rotation_about_2nd_axis_v2



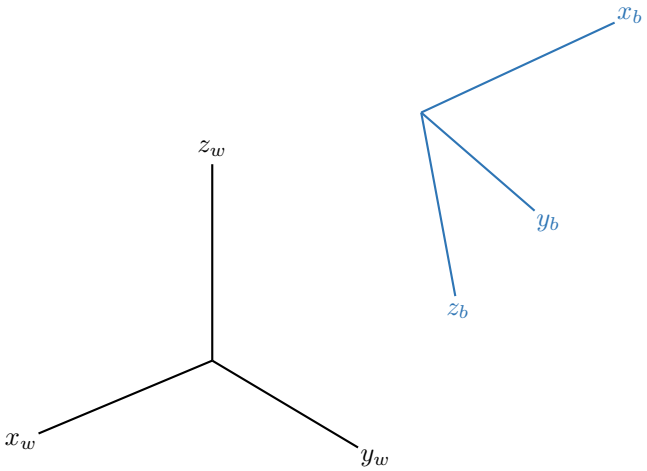
7.9 rotation_about_3rd_axis_v1



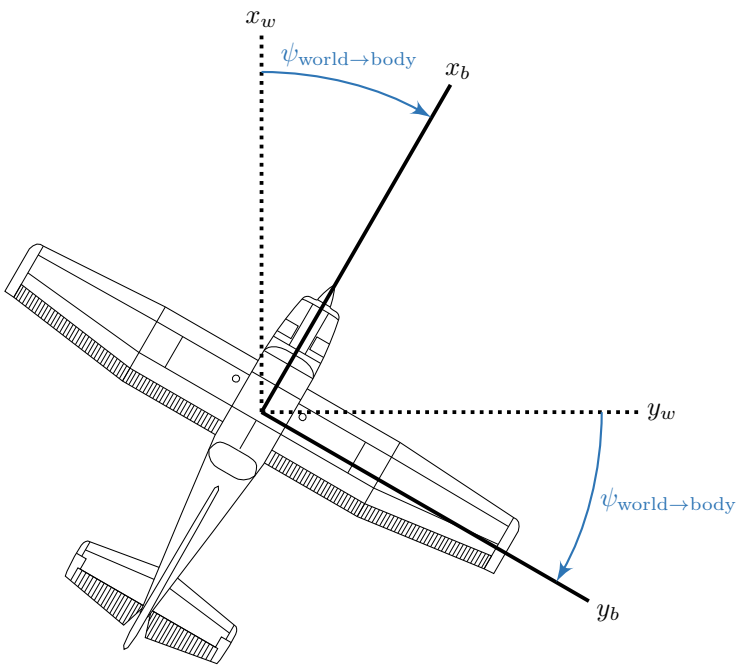
7.10 rotation_about_3rd_axis_v2



7.11 world_and_body_frames

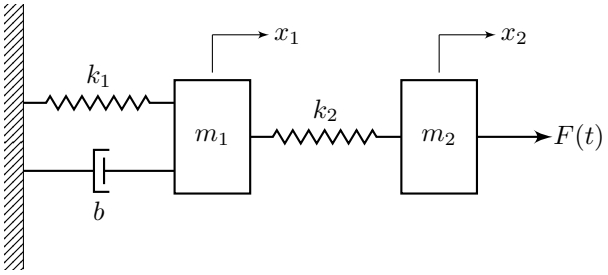


7.12 yaw_angle

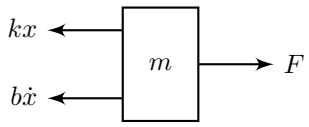


8 system_dynamics

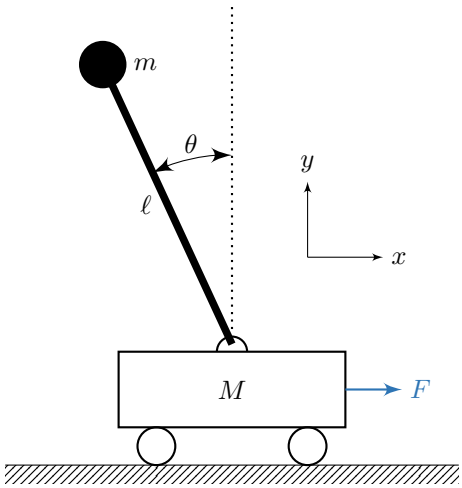
8.1 coupled_mass_spring_damper_system



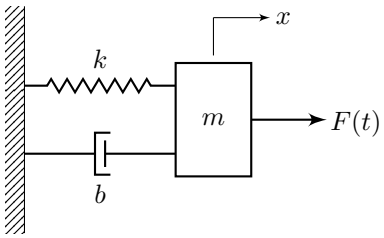
8.2 free_body_diagram_of_mass_spring_damper



8.3 inverted_pendulum_system

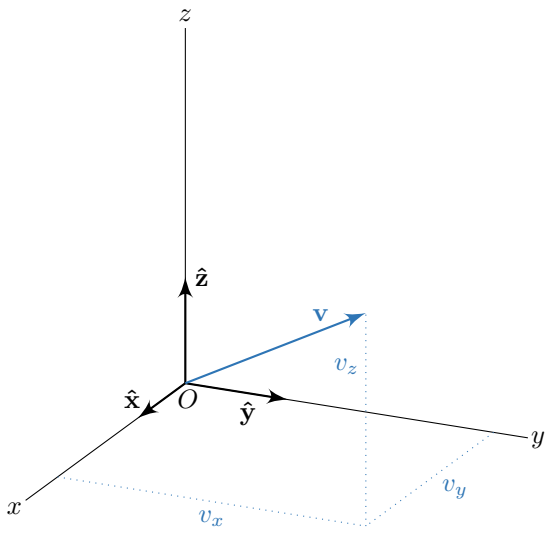


8.4 mass_spring_damper_system

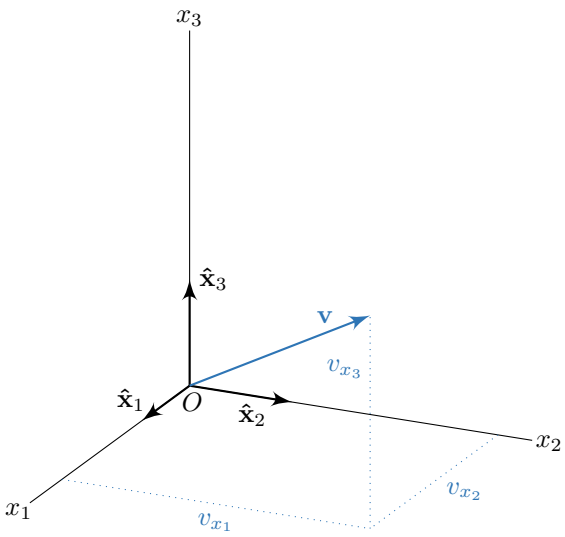


9 vectors_and_coordinate_systems

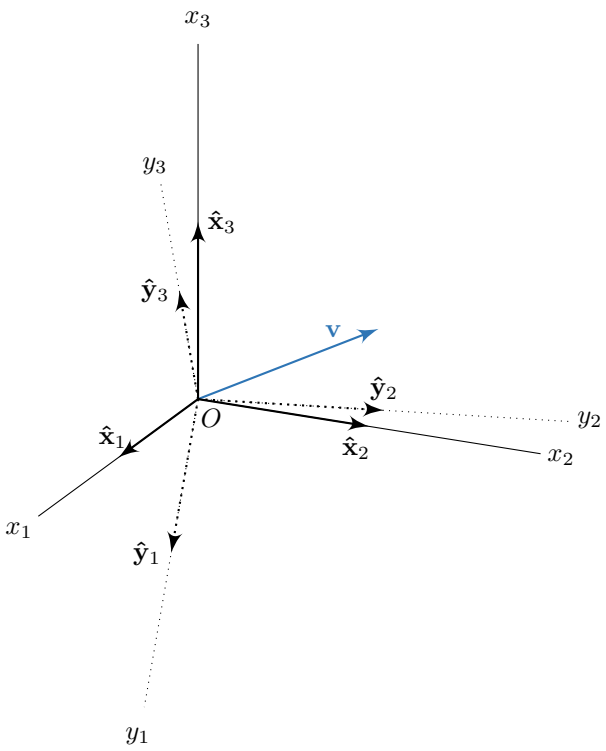
9.1 column_vector_in_a_coordinate_system_v1



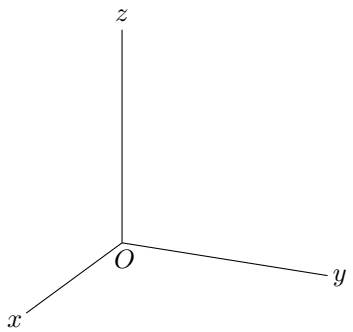
9.2 column_vector_in_a_coordinate_system_v2



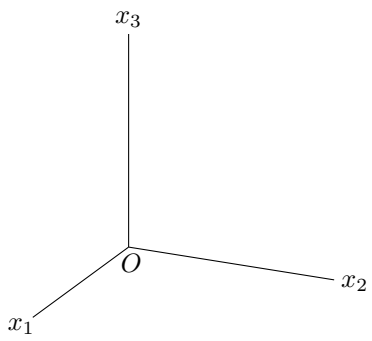
9.3 column_vector_with_respect_to_two_coordinate_systems



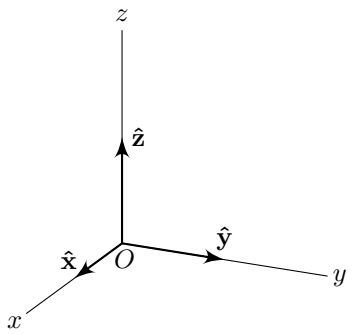
9.4 coordinate_system_v1



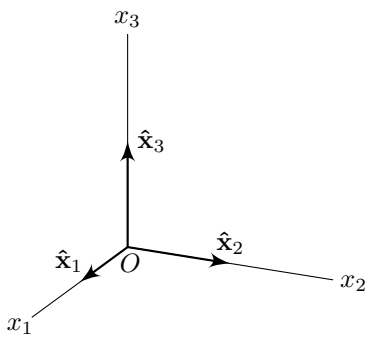
9.5 coordinate_system_v2



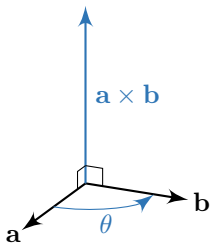
9.6 coordinate_system_with_basis_vectors_v1



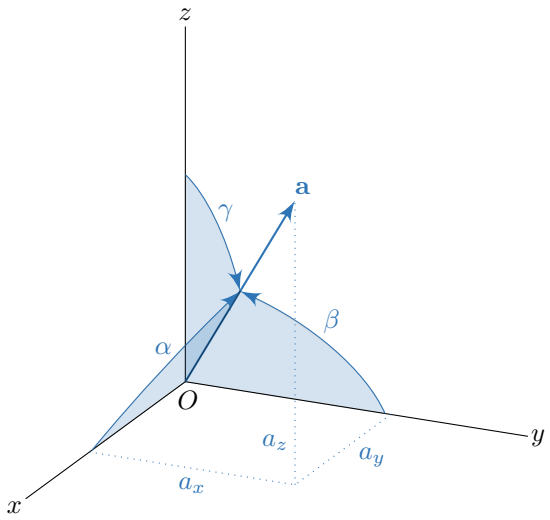
9.7 coordinate_system_with_basis_vectors_v2



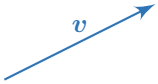
9.8 cross_product



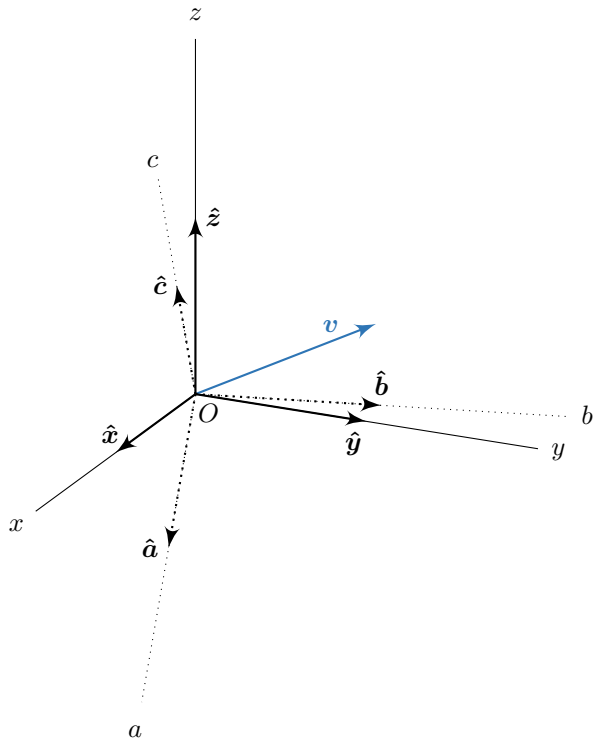
9.9 direction_angles



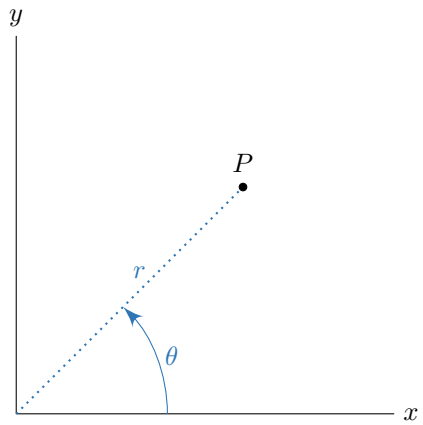
9.10 physical_vector



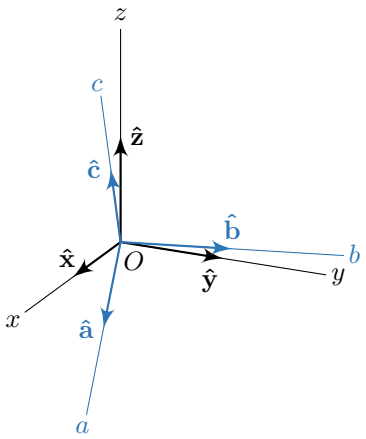
9.11 physical_vector_with_respect_to_two_coordinate_frames



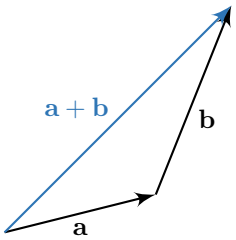
9.12 polar_coordinates



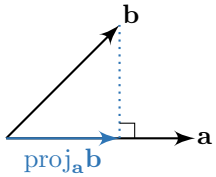
9.13 `rotated_coordinate_systems`



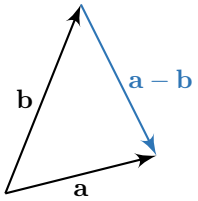
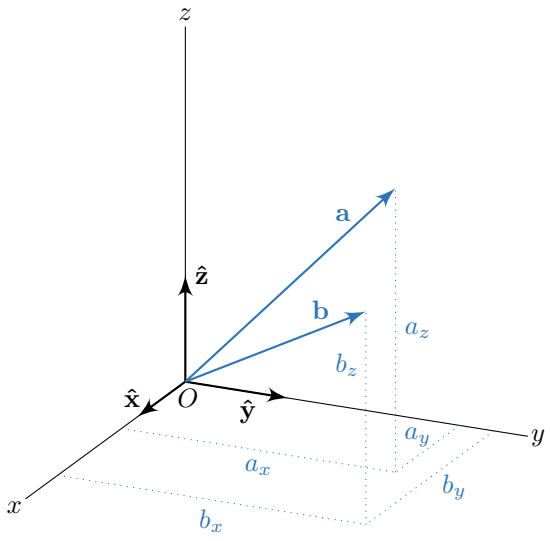
9.14 `vector_addition`



9.15 vector_projection



9.16 vector_subtraction



9.17 vectors_in_a_cartesian_coordinate_system