Advanced Dynamics
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Module No # 06
Lecture No # 28
Planar Kinetics of Rigid Bodies – II

We will continue our discussions on planar kinetics of rigid bodies.

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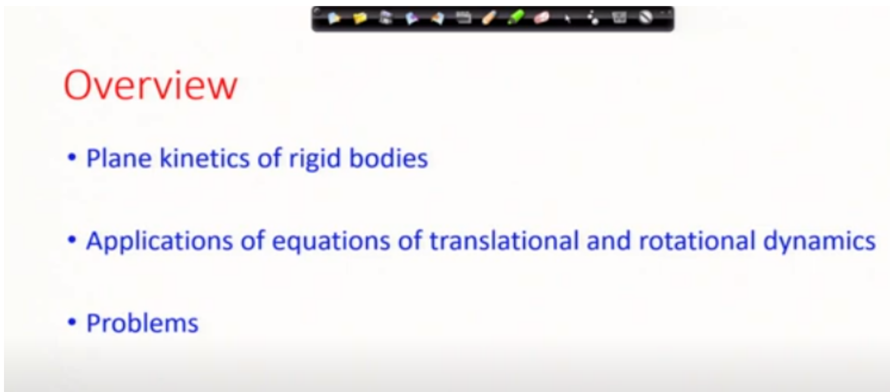

I am going to take up a few more problems and show you applications of the equations of motion of translational and rotational dynamics for plane kinetics of rigid bodies.

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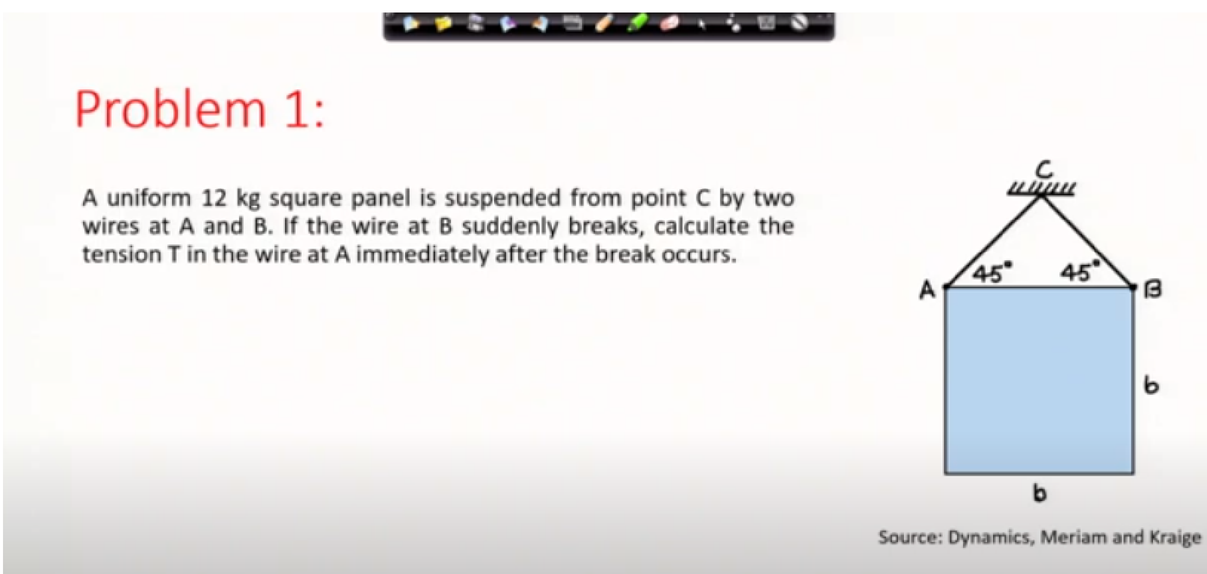

The problem statement is shown in the slide above.

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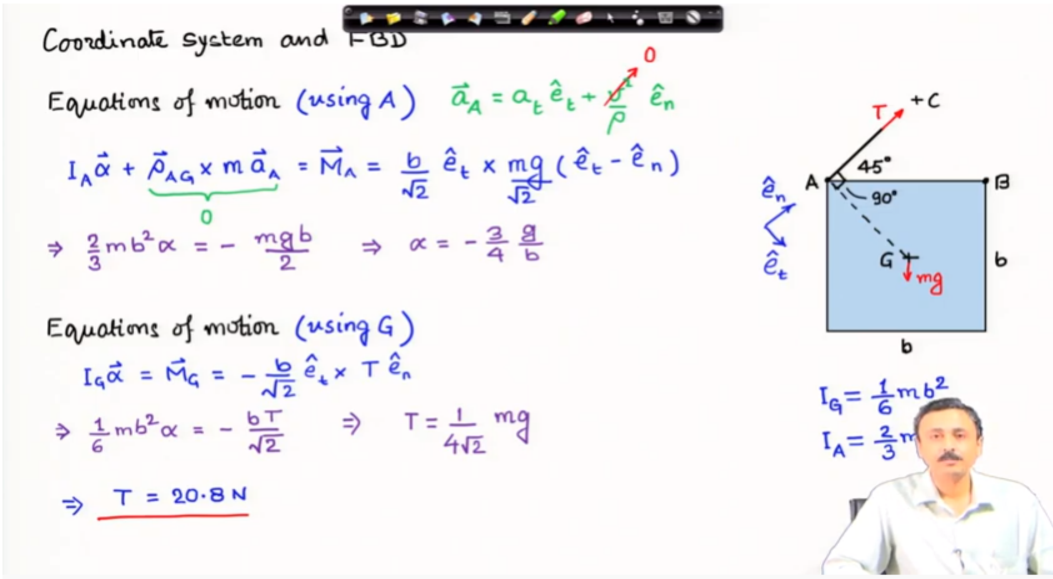

The detailed solution is presented in the slide above. It is important to note that the solution is obtained by writing out the rotational dynamics of the plate about 2 special points: (i) about A, and (ii) about G.

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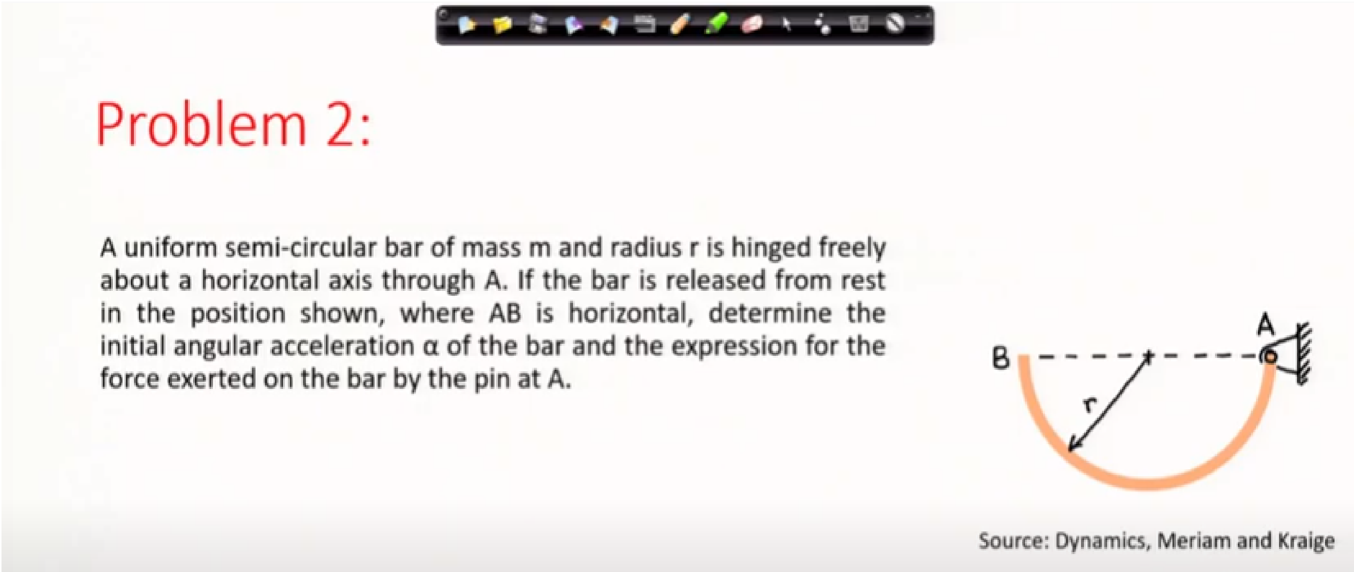

The problem statement is shown in the slide above.

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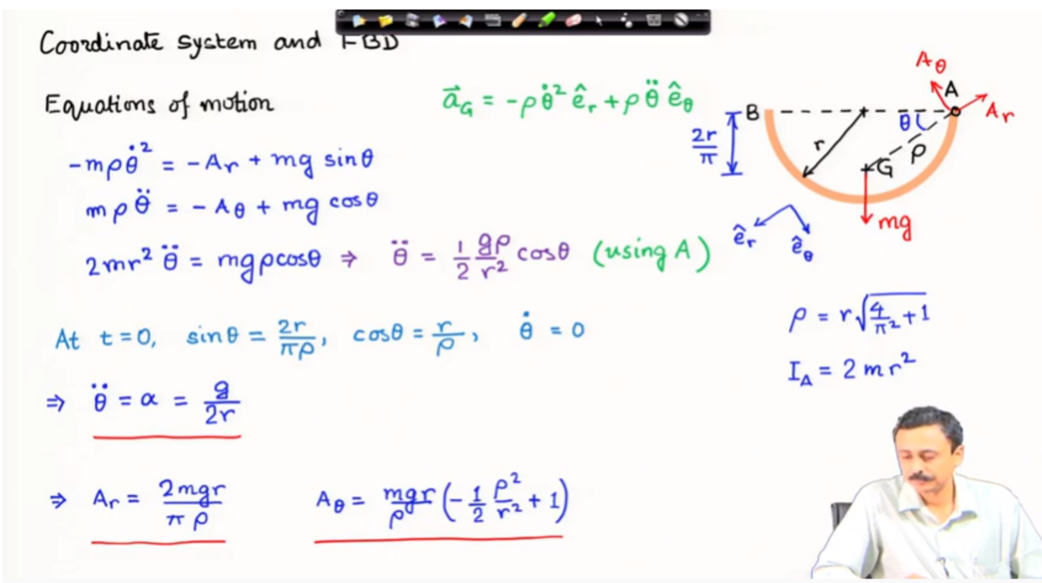

The detailed solution is provided in the slide above.

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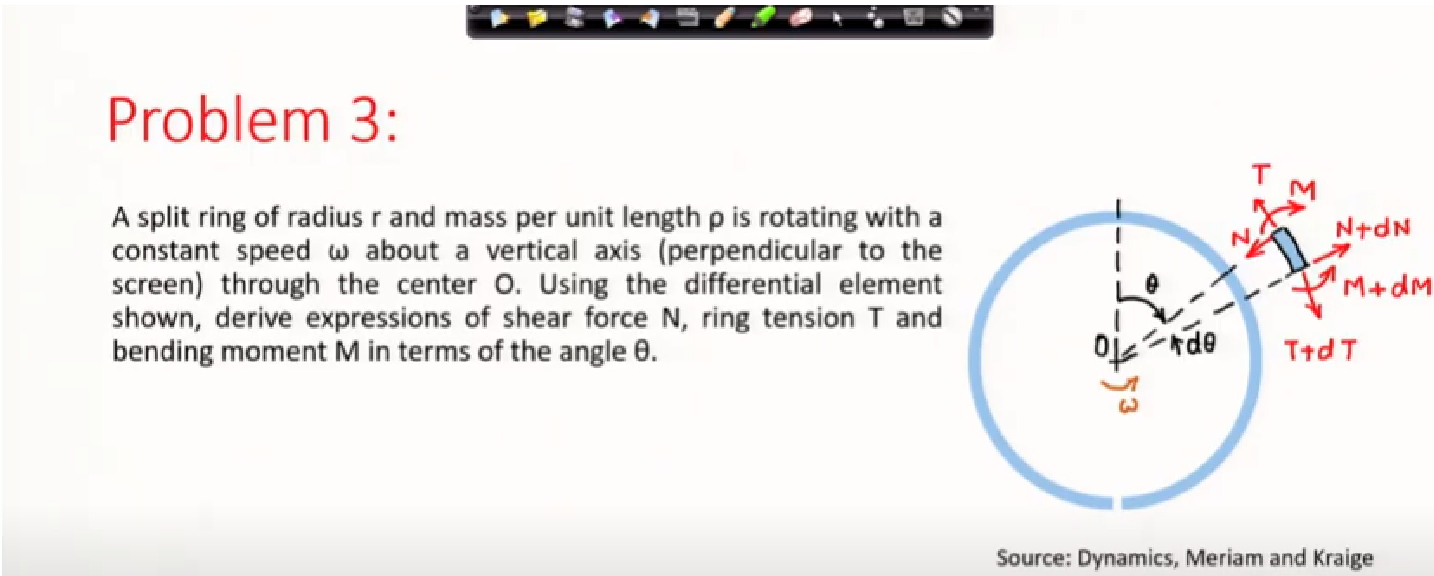

The next problem statement is shown in the slide above.

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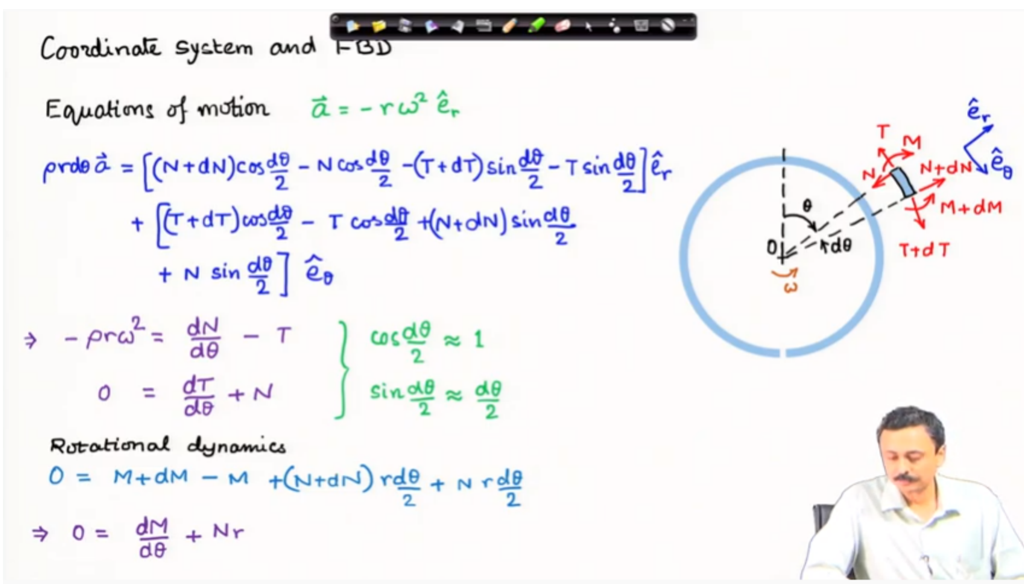

The solution starts by considering the free body diagram of the infinitesimal element as shown in the slide above. The equation of motion of the element is written in the plane polar coordinates as shown.

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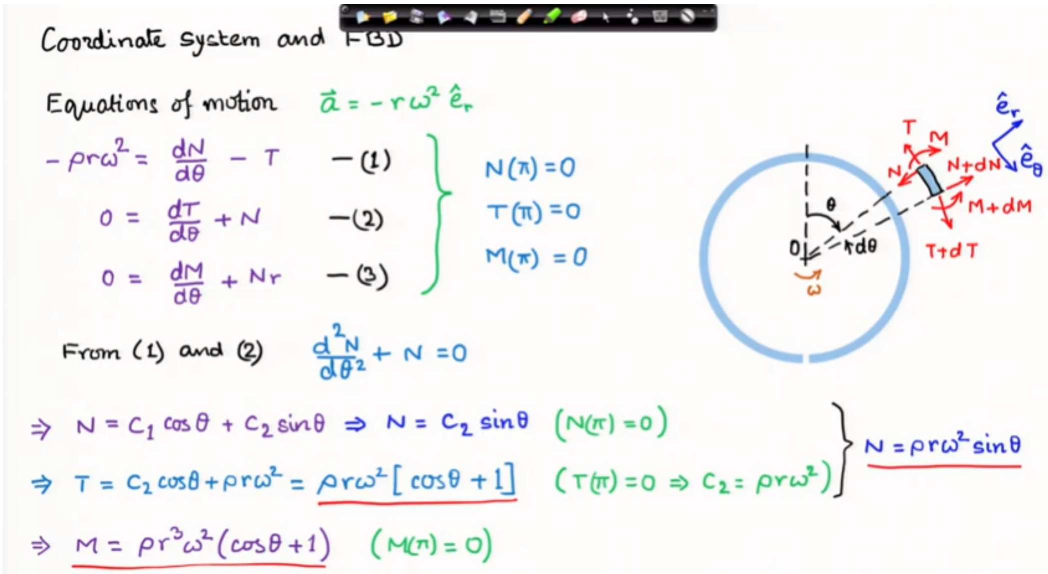

The obtained equations are then integrated using the boundary conditions as given in the slide above. That completes the solution.

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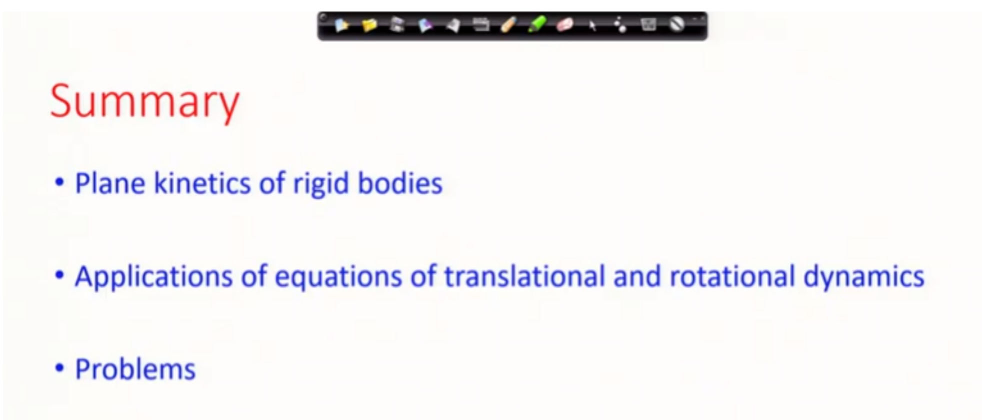

The discussions are summarized above.