Hello, this is Principles of Engineering System unit, learning outcome 8 analysing mass, spring, damper system responses.

So, we have taken ten readings, increasing the RPM to give a varying output of amplitude. First thing we must do is calculate the frequency, multiply by pulley ratio which is 22 to 72 from electric motor to drum and divide by sixty to change from minutes to seconds. Then copy this equation. From the amplitude we can see it peaks at 2.5 so that is where the natural frequency occurs at 3.56Hz. We can draw a graph and it shows the peak at the natural frequency. Next we can calculate the frequency ratio, which is the frequency divided by the natural frequency. Then we can graph frequency ratio against amplitude, and we can see the peak occurring at one.

Thank you for listening.