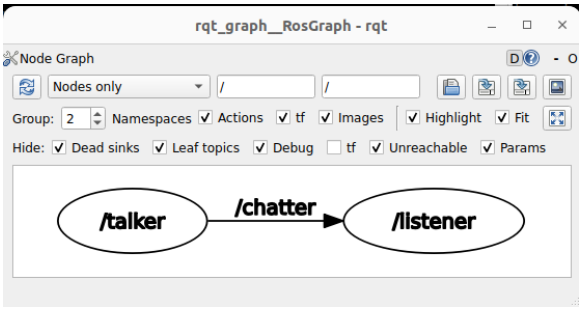
1. What are ROS Nodes?
    a. Any program that also has access to ros functions and ros comunications
2. What are ROS Topics?
    a. Listeners subscribe to topics and talkers publish to topics. It forms a named bus for communication between nodes. Multipl nodes can subscribe and publish to a node. It is also anonymous communication.
3. What are ROS Workspaces?
    a. Nothing more than a folder actually
4. What are ROS services?
    a. Makes a client server connection between nodes in which a nodes sends a request and receives a reply
5. When would you use a ROS service vs a ROS topic?
    a. Use ROS services for request-response interactions, and ROS topics for continuous data streams.
6. What do you have to do every time you open a new terminal in order to use ROS?Hint: it will produce the error ROS2 command not found. Bonus: How do you get around this?
    a. `source ~/ros2_humble/install/setup.bash`
    b. `Add this line to the end of your bashrc file found at ~/.bashrc`
7. I have just completed writing a node in my_robot_controller in a workspace called ros2_ws what does my path look like?
    a. ~/ros2_ws/src/my_robot_controller/my_robot_controller/node.py
8. If I were to have successfully established a ROS environment and run both talker and listener what would running rgt_graph produce?
    a. Representation of all the nodes that are running
    b. 

9. When you create a new node what do you need to do in order to run a new node called tester found in the node_tester package and where would you run it?
    a. `'console_scripts': [`
    b. `"test_node = my_robot_controller.my_first_node:main"`
    c. `],`
    d. Add this to you setup.py. Then colcon build and then run “ros2 run my_robot_controller (or whatever urs is called) test_node” in the src folder
10. What do you need to source to run custom nodes?
    a. The local setup.bash file in the workspace/install folder

11. If I have created a node called test_node in my_robot_controller and would like to execute it through the command line how would I make it executable from the command line with the ros2 functionalities? Name it tester. Hint: you must add something to a .py file.
    a. Chmod +x test_node
    b. Add shebang line
    c. Add it to setup.py
    d. Colcon build
    e. Source .bashrc
12. What packages do you need to import for every node?
    a. Import rclpy
    b. From rclpy.node import Node
13. What are the arguments for ros publisher and subscriber?
    a. create_publisher(msg_type, msg_name, queue_length)
    b. create_subscription(msg_type, msg_name, callback func, queue_length)
14. What does ros spin do and why do you need it?
    a. It makes it so that the node keeps running till it is killed. All the callbacks of the node will be able to run.
15. What is a call back?
    a. A callback repeatedly calls a function in intervals.
16. How do I see the ROS Topics running?
    a. Ros2 topic list
17. I noticed there is a topic called geometry message. How can I see what information is on that topic?
    a. ros2 topic echo /geometry_message
18. Once I know the name of a topic how do I know the message type of it?
    a. Ros2 topic info /geometry_message
    b. ros2 interface show <info under type>
19. What is the first thing you should do if you run into an error?
    a. Google the error
20. In setup.py I add the line “test_node = my_robot_controller.my_first_node:main” what is the executable name, what is the package name, and what is my node name?
    a. Exe = test_node, pack = my_robot_controller, node = my_first_node
21. How do you edit a python file in the terminal?
    a. nano pythonfile.py
22. What does chmod +x do?
    a. It makes the file executable
23. What is a src folder and why is it necessary?
    a. It is the source folder and it is where all the import files go (like where you make your nodes and all)
24. How do you create a ros package?
    a. ros2 pkg create <name of package> --build-type ament_python --dependencies rclpy
25. Why should you include --symlink in colcon build?

a. It lets you update without needing to colcon build each time