



The graphical representation is a linear function that crosses at the origin (0,0) and signifies a direct proportionality of y to x. All points represented on the graph are along the line, thus confirming its linearity with a constant positive slope of about $[(240-126.22222)/(256-128)] = 0.444$. As x increases, the rise in y is constant and concurrent, thus making the relation expressible as about $y = 0.444x$.

128 bytes:

```
ubuntu@ubuntu-ASUS-EXPERTCENTER-D700TC-D700TC:~/Downloads/ns-allinone-3.40/ns-3.40$ python3 examples/tutorial/first.py
AnimationInterface WARNING:Node:0 Does not have a mobility model. Use SetConstantPosition if it is stationary
AnimationInterface WARNING:Node:1 Does not have a mobility model. Use SetConstantPosition if it is stationary
AnimationInterface WARNING:Node:0 Does not have a mobility model. Use SetConstantPosition if it is stationary
AnimationInterface WARNING:Node:1 Does not have a mobility model. Use SetConstantPosition if it is stationary
At time +2s client sent 128 bytes to 10.1.1.2 port 9
At time +2.00225s server sent 128 bytes to 10.1.1.1 port 49153
At time +2.00451s client received 128 bytes from 10.1.1.2 port 9
FlowID: 1 (UDP 10.1.1.1/49153 --> 10.1.1.2/9)
Tx Bytes: 156
Rx Bytes: 156
Tx Packets: 1
Rx Packets: 1
Lost Packets: 0
Mean Delay: 0.0022528
Throughput: 69.33333333333333
FlowID: 2 (UDP 10.1.1.2/9 --> 10.1.1.1/49153)
Tx Bytes: 156
Rx Bytes: 156
Tx Packets: 1
Rx Packets: 1
Lost Packets: 0
Mean Delay: 0.0022528
Throughput: 69.33333333333333
```

256 bytes:

```
ubuntu@ubuntu-ASUS-EXPERTCENTER-D700TC-D700TC:~/Downloads/ns-allinone-3.40/ns-3.40$ python3 examples/tutorial/first.py
AnimationInterface WARNING:Node:0 Does not have a mobility model. Use SetConstantPosition if it is stationary
AnimationInterface WARNING:Node:1 Does not have a mobility model. Use SetConstantPosition if it is stationary
AnimationInterface WARNING:Node:0 Does not have a mobility model. Use SetConstantPosition if it is stationary
AnimationInterface WARNING:Node:1 Does not have a mobility model. Use SetConstantPosition if it is stationary
At time +2s client sent 256 bytes to 10.1.1.2 port 9
At time +2.00246s server received 256 bytes from 10.1.1.1 port 49153
At time +2.00246s server sent 256 bytes to 10.1.1.1 port 49153
At time +2.00492s client received 256 bytes from 10.1.1.2 port 9
FlowID: 1 (UDP 10.1.1.1/49153 --> 10.1.1.2/9)
Tx Bytes: 284
Rx Bytes: 284
Tx Packets: 1
Rx Packets: 1
Lost Packets: 0
Mean Delay: 0.0024576
Throughput: 126.2222222222223
FlowID: 2 (UDP 10.1.1.2/9 --> 10.1.1.1/49153)
Tx Bytes: 284
Rx Bytes: 284
Tx Packets: 1
Rx Packets: 1
Lost Packets: 0
Mean Delay: 0.0024576
Throughput: 126.2222222222223
```

512 bytes:

```
ubuntu@ubuntu-ASUS-EXPERTCENTER-D700TC-D700TC:~/Downloads/ns-allinone-3.40/ns-3.40$ python3 examples/tutorial/first.py
AnimationInterface WARNING:Node:0 Does not have a mobility model. Use SetConstantPosition if it is stationary
AnimationInterface WARNING:Node:1 Does not have a mobility model. Use SetConstantPosition if it is stationary
AnimationInterface WARNING:Node:0 Does not have a mobility model. Use SetConstantPosition if it is stationary
AnimationInterface WARNING:Node:1 Does not have a mobility model. Use SetConstantPosition if it is stationary
At time +2s client sent 512 bytes to 10.1.1.2 port 9
At time +2.00287s server received 512 bytes from 10.1.1.1 port 49153
At time +2.00287s server sent 512 bytes to 10.1.1.1 port 49153
At time +2.00573s client received 512 bytes from 10.1.1.2 port 9
FlowID: 1 (UDP 10.1.1.1/49153 --> 10.1.1.2/9)
Tx Bytes: 540
Rx Bytes: 540
Tx Packets: 1
Rx Packets: 1
Lost Packets: 0
Mean Delay: 0.0028672
Throughput: 240.0
FlowID: 2 (UDP 10.1.1.2/9 --> 10.1.1.1/49153)
Tx Bytes: 540
Rx Bytes: 540
Tx Packets: 1
Rx Packets: 1
Lost Packets: 0
Mean Delay: 0.0028672
Throughput: 240.0
```

1024 bytes:

```
ubuntu@ubuntu-ASUS-EXPERTCENTER-D700TC-D700TC:~/Downloads/ns-allinone-3.40/netanim-3.109$ cd ..
ubuntu@ubuntu-ASUS-EXPERTCENTER-D700TC-D700TC:~/Downloads/ns-allinone-3.40$ cd ns-3.40
ubuntu@ubuntu-ASUS-EXPERTCENTER-D700TC-D700TC:~/Downloads/ns-allinone-3.40/ns-3.40$ python3 examples/tutorial/first.py
AnimationInterface WARNING:Node:0 Does not have a mobility model. Use SetConstantPosition if it is stationary
AnimationInterface WARNING:Node:1 Does not have a mobility model. Use SetConstantPosition if it is stationary
AnimationInterface WARNING:Node:0 Does not have a mobility model. Use SetConstantPosition if it is stationary
AnimationInterface WARNING:Node:1 Does not have a mobility model. Use SetConstantPosition if it is stationary
At time +2s client sent 1024 bytes to 10.1.1.2 port 9
At time +2.00369s server received 1024 bytes from 10.1.1.1 port 49153
At time +2.00369s server sent 1024 bytes to 10.1.1.1 port 49153
At time +2.00737s client received 1024 bytes from 10.1.1.2 port 9
FlowID: 1 (UDP 10.1.1.1/49153 --> 10.1.1.2/9)
Tx Bytes: 1052
Rx Bytes: 1052
Tx Packets: 1
Rx Packets: 1
Lost Packets: 0
Mean Delay: 0.0036864
Throughput: 467.5555555555554
```

2048 bytes:

```
ubuntu@ubuntu-ASUS-EXPERTCENTER-D700TC-D700TC:~/Downloads/ns-allinone-3.40/ns-3.40$ python3 examples/tutorial/first.py
AnimationInterface WARNING:Node:0 Does not have a mobility model. Use SetConstantPosition if it is stationary
AnimationInterface WARNING:Node:1 Does not have a mobility model. Use SetConstantPosition if it is stationary
AnimationInterface WARNING:Node:0 Does not have a mobility model. Use SetConstantPosition if it is stationary
AnimationInterface WARNING:Node:1 Does not have a mobility model. Use SetConstantPosition if it is stationary
At time +2s client sent 2048 bytes to 10.1.1.2 port 9
At time +2.00536s server received 2048 bytes from 10.1.1.1 port 49153
At time +2.00536s server sent 2048 bytes to 10.1.1.1 port 49153
At time +2.01072s client received 2048 bytes from 10.1.1.2 port 9
FlowID: 1 (UDP 10.1.1.1/49153 --> 10.1.1.2/9)
Tx Bytes: 2076
Rx Bytes: 2076
Tx Packets: 1
Rx Packets: 1
Lost Packets: 0
Mean Delay: 0.00536
Throughput: 922.6666666666666
FlowID: 2 (UDP 10.1.1.2/9 --> 10.1.1.1/49153)
Tx Bytes: 2076
Rx Bytes: 2076
Tx Packets: 1
Rx Packets: 1
Lost Packets: 0
Mean Delay: 0.00536
Throughput: 922.6666666666666
```