2. Konfiguracja routingu statycznego

a) Skonfigurować trasy statyczne do wszystkich siec za pomocą polecenia:
ip route adres_sieci maska nazwa_interfejsu

```
Router1(config)#ip route 192.168.30.0 255.255.255.0 192.168.3.1
Router1(config)#ip route 192.168.2.0 255.255.255.0 192.168.3.1
Router1(config)#ip route 192.168.2.0 255.255.255.0 192.168.1.2
Router1(config)#ip route 192.168.20.0 255.255.255.0 192.168.1.2
```

Konfiguracja tras statycznych routera 1.

```
Router2(config)#ip route 192.168.10.0 255.255.255.0 192.168.1.1
Router2(config)#ip route 192.168.50.0 255.255.255.0 192.168.1.1
Router2(config)#ip route 192.168.3.0 255.255.255.0 192.168.1.1
Router2(config)#ip route 192.168.3.0 255.255.255.0 192.168.2.2
Router2(config)#ip route 192.168.30.0 255.255.255.0 192.168.2.2
```

Konfiguracja tras statycznych routera 2.

```
Router3(config)#ip route 192.168.10.0 255.255.255.0 192.168.3.2
Router3(config)#ip route 192.168.50.0 255.255.255.0 192.168.3.2
Router3(config)#ip route 192.168.1.0 255.255.255.0 192.168.3.2
Router3(config)#ip route 192.168.1.0 255.255.255.0 192.168.2.1
Router3(config)#ip route 192.168.20.0 255.255.255.0 192.168.2.1
```

Konfiguracja tras statycznych routera 3.

b) Sprawdzić poprawność wprowadzonych tras statycznych (polecenie ping).

```
C:\>ping 192.168.20.2

Pinging 192.168.20.2 with 32 bytes of data:

Request timed out.
Reply from 192.168.20.2: bytes=32 time=1ms TTL=126
Reply from 192.168.20.2: bytes=32 time=8ms TTL=126
Reply from 192.168.20.2: bytes=32 time=1ms TTL=126

Ping statistics for 192.168.20.2:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 8ms, Average = 3ms

C:\>ping 192.168.30.2

Pinging 192.168.30.2 with 32 bytes of data:

Request timed out.
Reply from 192.168.30.2: bytes=32 time=1ms TTL=126
Reply from 192.168.30.2: bytes=32 time=19ms TTL=126
Reply from 192.168.30.2: bytes=32 time=3ms TTL=126

Ping statistics for 192.168.30.2:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 19ms, Average = 7ms
```

Pingi PC1 do PC2 i PC3

```
C:\>ping 192.168.10.2

Pinging 192.168.10.2 with 32 bytes of data:

Reply from 192.168.10.2: bytes=32 time=13ms TTL=126
Reply from 192.168.10.2: bytes=32 time=1ms TTL=126
Reply from 192.168.10.2: bytes=32 time=1ms TTL=126
Reply from 192.168.10.2: bytes=32 time=1ms TTL=126

Ping statistics for 192.168.10.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 13ms, Average = 4ms

C:\>ping 192.168.30.2

Pinging 192.168.30.2 with 32 bytes of data:

Reply from 192.168.30.2: bytes=32 time=14ms TTL=126
Reply from 192.168.30.2: bytes=32 time=10ms TTL=126
Reply from 192.168.30.2: bytes=32 time=1ms TTL=126
Reply from 192.168.30.2: bytes=32 time=24ms TTL=126

Ping statistics for 192.168.30.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 24ms, Average = 12ms
```

Pingi PC2 do PC1 i PC3.

Pingi PC3 do PC1 i PC2.

Jak widać skoro wszystkie komputery mogą się pingować między sobą, znaczy to że trasy statyczne zostały wprowadzone prawodłowo.

d) Jak wygląda tablica routingu?

Tablica routingu routera 1.

```
       192.168.1.0/24 is variably subnetted, 2 subnets, 2 masks
C         192.168.1.0/24 is directly connected, Serial0/0/1
L         192.168.1.2/32 is directly connected, Serial0/0/1
       192.168.2.0/24 is variably subnetted, 2 subnets, 2 masks
C         192.168.2.0/24 is directly connected, Serial0/0/0
L         192.168.2.1/32 is directly connected, Serial0/0/0
S      192.168.3.0/24 [1/0] via 192.168.2.2
                      [1/0] via 192.168.1.1
S      192.168.10.0/24 [1/0] via 192.168.1.1
       192.168.20.0/24 is variably subnetted, 2 subnets, 2 masks
C         192.168.20.0/24 is directly connected, FastEthernet0/0
L         192.168.20.1/32 is directly connected, FastEthernet0/0
S      192.168.30.0/24 [1/0] via 192.168.2.2
S      192.168.50.0/24 [1/0] via 192.168.1.1
```

Tablica routingu routera 2.

```
S      192.168.1.0/24 [1/0] via 192.168.3.2
                      [1/0] via 192.168.2.1
       192.168.2.0/24 is variably subnetted, 2 subnets, 2 masks
C         192.168.2.0/24 is directly connected, Serial0/0/1
L         192.168.2.2/32 is directly connected, Serial0/0/1
       192.168.3.0/24 is variably subnetted, 2 subnets, 2 masks
C         192.168.3.0/24 is directly connected, Serial0/0/0
L         192.168.3.1/32 is directly connected, Serial0/0/0
S      192.168.10.0/24 [1/0] via 192.168.3.2
S      192.168.20.0/24 [1/0] via 192.168.2.1
       192.168.30.0/24 is variably subnetted, 2 subnets, 2 masks
C         192.168.30.0/24 is directly connected, FastEthernet0/0
L         192.168.30.1/32 is directly connected, FastEthernet0/0
S      192.168.50.0/24 [1/0] via 192.168.3.2
```

Tablica   routingu
routera 3.

e) Sprawdzić możliwość komunikacji pomiędzy komputerami przyłączonymi do sieci LAN. Jeżeli komunikacja nie jest możliwa – znajdź przyczynę.

Jak zostało pokazane w podpunkcie b, komputery mogą się komunikować między sobą.