

```
set search_path to shakespeare, boundless, natural_earth, public;
```

```
--Create a query which measures the area of all the neighborhoods in the  
nyc_neighborhoods table.
```

```
--Write one query which displays the neighborhood name, area as calculated in UTM  
18N (which the data is stored in), New York State Plane Long Island (look up the  
appropriate SRID), and on the WGS 84 spheroid by casting to the geography type.
```

```
--Make sure to pay attention to the units, and convert all the outputs to square  
kilometers.--
```

```
select name, ST_Area(geom)/1000 as utm18N,  
ST_Area(ST_Transform(geom, 2263))/1000 as NYSP,  
ST_Area(ST_Transform(geom, 4326))/1000 as WGS84  
from nyc_neighborhoods;
```

```
--Not sure why WGS looks like this--
```

```
--Create a query which calculates the distance from 4/5/6 Grand Central Station  
stop to every neighborhood in nyc_neighborhoods.
```

```
--Use a subquery to select the geom only for Grand Central Station as one of the  
input parameters to the distance function.
```

```
--Show the neighborhood name and calculate the distance using UTM 18N (which the  
data is stored in), New York State Plane Long Island, and on the WGS 84 spheroid by  
casting to the geography type.
```

```
--Make sure to pay attention to the units, and convert all the outputs to  
kilometers.
```

```
select name, ST_Distance(ST_Point(586351, 4511718, 26918), geom)/1000 as utm18N,  
ST_Distance(ST_Point(586351, 4511718, 2263), ST_Transform(geom, 2263))/1000 as  
NYSP,  
ST_Distance(ST_Point(586351, 4511718, 4326), ST_Transform(geom, 4326))/1000 as  
WGS84  
from nyc_neighborhoods;
```

```
--Create a query which calculates distance from Philadelphia to the five most  
populous cities in the table ne_10m_populated_places (use the pop_max column for  
population size).
```

```
--Include the table name and the following distances:
```

```
--the distance in the coordinate system as stored (decimal degrees, which will be  
useless)
```

```
--the distance in Web Mercator (which will also be useless)
```

```
--the geodetic distance using a geography cast
```

```
select name, ST_Distance(geom::geography, (select geom from ne_10m_populated_places  
where name = 'Philadelphia')::geography)/1000 as KM_to_Philly_cast,  
ST_Distance(geom, (select geom from ne_10m_populated_places where name =  
'Philadelphia'))/1000 as KM_to_Philly_utm18N,  
ST_Distance(ST_Transform(geom, 4326), ST_Transform((select geom from  
ne_10m_populated_places where name = 'Philadelphia'), 4326))/1000 as  
KM_to_Philly_utm18N  
from ne_10m_populated_places order by pop_max limit 5;
```

```
select geom from ne_10m_populated_places where name = 'Philadelphia';
```