MySQL Exercise 11: Answer Key

Question 1:
```
%%sql
SELECT DISTINCT dimension
FROM dogs;
```

Question 2:
```
%%sql
SELECT d.dog_guid AS dogID, d.dimension AS dimension, count(c.created_at) AS numtests
FROM dogs d, complete_tests c
WHERE d.dog_guid=c.dog_guid
GROUP BY dogID
LIMIT 100;
```

Question 3:
```
%%sql
SELECT d.dog_guid AS dogID, d.dimension AS dimension, count(c.created_at) AS numtests
FROM dogs d JOIN complete_tests c
ON d.dog_guid=c.dog_guid
GROUP BY dogID
LIMIT 100;
```

Question 4:
```
%%sql
SELECT dimension, AVG(numtests_per_dog.numtests) AS avg_tests_completed
FROM( SELECT d.dog_guid AS dogID, d.dimension AS dimension, count(c.created_at) AS numtests
        FROM dogs d, complete_tests c
        WHERE d.dog_guid=c.dog_guid
        GROUP BY dogID) AS numtests_per_dog
GROUP BY numtests_per_dog.dimension;
```

OR

```
%%sql
SELECT dimension, AVG(numtests_per_dog.numtests) AS avg_tests_completed
FROM( SELECT d.dog_guid AS dogID, d.dimension AS dimension, count(c.created_at) AS numtests
        FROM dogs d JOIN complete_tests c
        ON d.dog_guid=c.dog_guid
        GROUP BY dogID) AS numtests_per_dog
GROUP BY numtests_per_dog.dimension;
```

Question 5:
```sql
%%sql
SELECT dimension, COUNT(DISTINCT dogID) AS num_dogs
FROM( SELECT d.dog_guid AS dogID, d.dimension AS dimension
        FROM dogs d JOIN complete_tests c
    ON d.dog_guid=c.dog_guid
WHERE d.dimension IS NULL OR d.dimension="
GROUP BY dogID) AS dogs_in_complete_tests
GROUP BY dimension;
```

Question 6:
```sql
%%sql
SELECT d.breed, d.weight, d.exclude, MIN(c.created_at) AS first_test,
MAX(c.created_at) AS last_test,count(c.created_at) AS numtests
FROM dogs d JOIN complete_tests c
  ON d.dog_guid=c.dog_guid
WHERE d.dimension=""
GROUP BY d.dog_guid;
```

Question 7:
```sql
%%sql
SELECT dimension, AVG(numtests_per_dog.numtests) AS avg_tests_completed,
COUNT(DISTINCT dogID)
FROM( SELECT d.dog_guid AS dogID, d.dimension AS dimension, count(c.created_at)
        AS numtests
      FROM dogs d JOIN complete_tests c
        ON d.dog_guid=c.dog_guid
      WHERE (dimension IS NOT NULL AND dimension!=") AND (d.exclude IS NULL
    OR            d.exclude=0)
      GROUP BY dogID) AS numtests_per_dog
GROUP BY numtests_per_dog.dimension;
```

Question 8:
```sql
%%sql
SELECT DISTINCT breed_group
FROM dogs;
```

Question 9:
```sql
%%sql
SELECT d.breed, d.weight, d.exclude, MIN(c.created_at) AS first_test,
MAX(c.created_at) AS last_test,count(c.created_at) AS numtests
FROM dogs d JOIN complete_tests c
  ON d.dog_guid=c.dog_guid
WHERE breed_group IS NULL
GROUP BY d.dog_guid;
```

Question 10:
```
%%sql
SELECT breed_group, AVG(numtests_per_dog.numtests) AS avg_tests_completed,
COUNT(DISTINCT dogID)
FROM( SELECT d.dog_guid AS dogID, d.breed_group AS breed_group,
        count(c.created_at) AS numtests
      FROM dogs d JOIN complete_tests c
        ON d.dog_guid=c.dog_guid
      WHERE d.exclude IS NULL OR d.exclude=0
      GROUP BY dogID) AS numtests_per_dog
GROUP BY breed_group;
```

Question 11:
```
%%sql
SELECT breed_group, AVG(numtests_per_dog.numtests) AS avg_tests_completed,
COUNT(DISTINCT dogID)
FROM( SELECT d.dog_guid AS dogID, d.breed_group AS breed_group,
        count(c.created_at) AS numtests
      FROM dogs d JOIN complete_tests c
        ON d.dog_guid=c.dog_guid
      WHERE d.exclude IS NULL OR d.exclude=0
      GROUP BY dogID) AS numtests_per_dog
GROUP BY breed_group
HAVING breed_group IN ('Sporting','Hound','Herding','Working');
```

Question 12:
```
%%sql
SELECT DISTINCT breed_group
FROM dogs;
```

Question 13:
```
%%sql
SELECT breed_type, AVG(numtests_per_dog.numtests) AS avg_tests_completed,
COUNT(DISTINCT dogID)
FROM( SELECT d.dog_guid AS dogID, d.breed_type AS breed_type,
        count(c.created_at) AS numtests
      FROM dogs d JOIN complete_tests c
        ON d.dog_guid=c.dog_guid
      WHERE d.exclude IS NULL OR d.exclude=0
      GROUP BY dogID) AS numtests_per_dog
GROUP BY breed_type;
```

Question 14:
```
%%sql
SELECT d.dog_guid AS dogID, d.breed_type AS breed_type,
   CASE WHEN d.breed_type='Pure Breed' THEN 'pure_breed'
      ELSE 'not_pure_breed'
   END AS pure_breed,
count(c.created_at) AS numtests
FROM dogs d, complete_tests c
WHERE d.dog_guid=c.dog_guid
GROUP BY dogID
LIMIT 50
```

Question 15:
```
%%sql
SELECT numtests_per_dog.pure_breed AS pure_breed,
AVG(numtests_per_dog.numtests) AS avg_tests_completed, COUNT(DISTINCT dogID)
FROM( SELECT d.dog_guid AS dogID, d.breed_type AS breed_type,
        CASE WHEN d.breed_type='Pure Breed' THEN 'pure_breed'
           ELSE 'not_pure_breed'
        END AS pure_breed,
        count(c.created_at) AS numtests
        FROM dogs d JOIN complete_tests c
           ON d.dog_guid=c.dog_guid
        WHERE d.exclude IS NULL OR d.exclude=0
        GROUP BY dogID) AS numtests_per_dog
GROUP BY pure_breed;
```

Question 16:
```
%%sql
SELECT numtests_per_dog.pure_breed AS pure_breed, neutered,
AVG(numtests_per_dog.numtests) AS avg_tests_completed, COUNT(DISTINCT dogID)
FROM( SELECT d.dog_guid AS dogID, d.breed_group AS breed_type, d.dog_fixed AS
        neutered,
        CASE WHEN d.breed_type='Pure Breed' THEN 'pure_breed'
           ELSE 'not_pure_breed'
           END AS pure_breed,
        count(c.created_at) AS numtests
        FROM dogs d JOIN complete_tests c
           ON d.dog_guid=c.dog_guid
        WHERE d.exclude IS NULL OR d.exclude=0
        GROUP BY dogID) AS numtests_per_dog
GROUP BY pure_breed, neutered;
```

Question 17:
%%sql

```sql
SELECT dimension, AVG(numtests) AS avg_tests_completed, COUNT(DISTINCT
dogID),
STDDEV(numtests)
FROM( SELECT d.dog_guid AS dogID, d.dimension AS dimension, count(c.created_at)
        AS numtests
      FROM dogs d JOIN complete_tests c
        ON d.dog_guid=c.dog_guid
      WHERE (dimension IS NOT NULL AND dimension!='') AND (d.exclude IS NULL
       OR d.exclude=0)
      GROUP BY dogID) AS numtests_per_dog
GROUP BY numtests_per_dog.dimension;
```

Question 18:
%%sql

```sql
SELECT d.breed_type AS breed_type,
AVG(TIMESTAMPDIFF(minute,e.start_time,e.end_time)) AS AvgDuration,
STDDEV(TIMESTAMPDIFF(minute,e.start_time,e.end_time)) AS StdDevDuration
FROM dogs d JOIN exam_answers e
   ON d.dog_guid=e.dog_guid
WHERE TIMESTAMPDIFF(minute,e.start_time,e.end_time)>0
GROUP BY breed_type;
```