numeric_datatypes_summary_functions

```sql
-- Select average revenue per employee by sector
SELECT sector,
    AVG(revenues/employees::numeric) AS avg_rev_employee
 FROM fortune500
 GROUP BY sector
 -- Use the column alias to order the results
 ORDER BY avg_rev_employee;
```

Explanation:

- This SQL query calculates the average revenue per employee for each sector in a table named fortune500. It divides the revenues by employees (casting employees to numeric to handle potential data type issues), then averages the result for each sector using AVG(). The results are grouped by sector and ordered by the calculated avg_rev_employee in ascending order.

```sql
-- Divide unanswered_count by question_count
SELECT
  unanswered_count/question_count::numeric AS computed_pct,
  -- What are you comparing the above quantity to?
  unanswered_pct
FROM
  stackoverflow
-- Select rows where question_count is not 0
WHERE
  question_count != 0
LIMIT 10;
```

Explanation:

- This SQL query calculates a percentage by dividing the unanswered_count by the question_count for each row in the stackoverflow table. The ::numeric cast ensures a floating-point result instead of integer division. It then compares this computed percentage (computed_pct) to an existing unanswered_pct column (presumably already containing a percentage). The query only includes rows where question_count is not zero to avoid division by zero errors and limits the output to the first 10 rows.

```sql
-- Select min, avg, max, and stddev of fortune500 profits
SELECT min(profits),
    max(profits),
    avg(profits),
```

```
    stddev(profits)
 FROM fortune500;
```

Explanation:

- This SQL query calculates and displays the minimum, maximum, average, and standard deviation of the profits column from a table named fortune500. The min(), max(), avg(), and stddev() functions are aggregate functions, meaning they operate on a set of values to produce a single result.

```
-- Select sector and summary measures of fortune500 profits
SELECT
    sector,
    MIN(profits),
    MAX(profits),
    AVG(profits),
    STDDEV(profits)
 FROM fortune500
-- What to group by?
 GROUP BY sector
-- Order by the average profits
 ORDER BY avg;
```

Explanation:

- This SQL query calculates and displays summary statistics (minimum, maximum, average, and standard deviation) of profits for each sector in the fortune500 table. It groups the data by sector to perform these calculations separately for each sector and then orders the results by the average profit.

```
-- Compute standard deviation of maximum values
SELECT STDDEV(maxval), -- Standard deviation of maximum question counts per tag
    MIN(maxval),   -- Minimum of maximum question counts
    MAX(maxval),   -- Maximum of maximum question counts
    AVG(maxval)    -- Average of maximum question counts
 FROM (SELECT MAX(question_count) AS maxval -- Subquery to find the maximum question_count
for each tag
      FROM stackoverflow
     GROUP BY tag) AS max_results; -- Alias for the subquery
```

Explanation:

- This SQL query calculates the standard deviation, minimum, maximum, and average of the maximum question_count for each tag in the stackoverflow table. It uses a subquery to first determine the maximum question_count for every tag, and then calculates the statistics on those maximum values.