collections by extracting all vertex points of all components of the collection, creating a `MultiPoint` value from them, and computing its convex hull.

`ST_ConvexHull()` handles its arguments as described in the introduction to this section, with this exception:

- The return value is `NULL` for the additional condition that the argument is an empty geometry collection.

```
mysql> SET @g = 'MULTIPOINT(5 0,25 0,15 10,15 25)';
mysql> SELECT ST_AsText(ST_ConvexHull(ST_GeomFromText(@g)));
+---------------------------------------------+
| ST_AsText(ST_ConvexHull(ST_GeomFromText(@g))) |
+---------------------------------------------+
| POLYGON((5 0,25 0,15 25,5 0))               |
+---------------------------------------------+
```

- `ST_Difference(g1, g2)`

  Returns a geometry that represents the point set difference of the geometry values *`g1`* and *`g2`*. The result is in the same SRS as the geometry arguments.

  As of MySQL 8.0.26, `ST_Difference()` permits arguments in either a Cartesian or a geographic SRS. Prior to MySQL 8.0.26, `ST_Difference()` permits arguments in a Cartesian SRS only; for arguments in a geographic SRS, an `ER_NOT_IMPLEMENTED_FOR_GEOGRAPHIC_SRS` error occurs.

  `ST_Difference()` handles its arguments as described in the introduction to this section.

```
mysql> SET @g1 = Point(1,1), @g2 = Point(2,2);
mysql> SELECT ST_AsText(ST_Difference(@g1, @g2));
+-----------------------------------+
| ST_AsText(ST_Difference(@g1, @g2)) |
+-----------------------------------+
| POINT(1 1)                        |
+-----------------------------------+
```

- `ST_Intersection(g1, g2)`

  Returns a geometry that represents the point set intersection of the geometry values *`g1`* and *`g2`*. The result is in the same SRS as the geometry arguments.

  As of MySQL 8.0.27, `ST_Intersection()` permits arguments in either a Cartesian or a geographic SRS. Prior to MySQL 8.0.27, `ST_Intersection()` permits arguments in a Cartesian SRS only; for arguments in a geographic SRS, an `ER_NOT_IMPLEMENTED_FOR_GEOGRAPHIC_SRS` error occurs.

  `ST_Intersection()` handles its arguments as described in the introduction to this section.

```
mysql> SET @g1 = ST_GeomFromText('LineString(1 1, 3 3)');
mysql> SET @g2 = ST_GeomFromText('LineString(1 3, 3 1)');
mysql> SELECT ST_AsText(ST_Intersection(@g1, @g2));
+-------------------------------------+
| ST_AsText(ST_Intersection(@g1, @g2)) |
+-------------------------------------+
| POINT(2 2)                          |
+-------------------------------------+
```

- `ST_LineInterpolatePoint(ls, fractional_distance)`

  This function takes a `LineString` geometry and a fractional distance in the range [0.0, 1.0] and returns the `Point` along the `LineString` at the given fraction of the distance from its start point to its endpoint.