INNER JOIN Practice Problems

1) Using the Person.Person and Person.Password tables, INNER JOIN the two tables using the BusinessEntityID column and return the FirstName and LastName columns from Person.Person and then PasswordHash column from Person.Password
2) Join the HumanResources.Employee and the HumanResources.EmployeeDepartmentHistory tables together via an INNER JOIN using the BusinessEntityID column. Return the BusinessEntityID, NationalIDNumber and JobTitle columns from HumanResources.Employee and the DepartmentID, StartDate, and EndDate columns from HumanResources.EmployeeDepartmentHistory. Notice the number of rows returned. Why is the row count what it is?
3) Expand upon the query used in question 1. Using the existing query, add another INNER JOIN to the Person.EmailAddress table and include the EmailAddress column in your select statement.
4) Using the Book, BookAuthor and Author tables, join them together so that you return the Title and ISBN columns from Book and the AuthorName column from Author. (Hint: You must start with the BookAuthor table in your FROM clause even though we will not be returning any columns from this table)
5) Using the query from example 4, add another INNER JOIN that joins the Publisher table with your query. Return the PublisherName column from this table. So, you should return the Title and ISBN columns from Book, the AuthorName column from Author, and the PublisherName column from Publisher. (Hint: this will require three separate INNER JOINs).

INNER JOIN Practice Problem Solutions

Question 1:

```
SELECT
	P.FirstName,
	P.LastName,
	PP.PasswordHash
FROM Person.Person P
INNER JOIN Person.[Password] PP
ON PP.BusinessEntityID = P.BusinessEntityID
```

Question 2:

```
SELECT
	E.BusinessEntityID,
	E.NationalIDNumber,
	E.JobTitle,
	EDH.DepartmentID,
	EDH.StartDate,
	EDH.EndDate
FROM HumanResources.Employee E
INNER JOIN HumanResources.EmployeeDepartmentHistory EDH
ON E.BusinessEntityID = EDH.BusinessEntityID
```

Since the HumanResources.Employee table has 290 rows, you might expect the INNER JOIN of that table with HumanResources.EmployeeDepartmentHistory would have no more than 290 rows. However, there are multiple instances of a few BusinessEntityID values in HumanResources.EmployeeDepartmentHistory. Instead of matching a single row from HumanResources.Employee to a single row in HumanResources.EmployeeDepartmentHistory, a row in HumanResources.Employee is matching to potentially two rows. This means that multiple rows are returned for the duplicate BusinessEntityID values. The lowest level of detail of uniqueness is often referred to as the **grain** of a table. Making sure that your joins account for potential grain differences is critical to produce proper queries.

Question 3:

```
SELECT
	P.FirstName,
	P.LastName,
	PP.PasswordHash,
	E.EmailAddress
FROM Person.Person P
INNER JOIN Person.[Password] PP
ON PP.BusinessEntityID = P.BusinessEntityID
INNER JOIN Person.EmailAddress E
ON E.BusinessEntityID = P.BusinessEntityID
```

Question 4:

```
SELECT
	B.Title,
	B.ISBN,
	A.AuthorName
```

```
FROM BookAuthor BA
INNER JOIN Book B
ON B.BookID = BA.BookID
INNER JOIN Author A
ON A.AuthorID = BA.AuthorID
```

Question 5:

```
SELECT
       B.Title,
       B.ISBN,
       A.AuthorName,
       P.PublisherName
FROM BookAuthor BA
INNER JOIN Book B
ON B.BookID = BA.BookID
INNER JOIN Author A
ON A.AuthorID = BA.AuthorID
INNER JOIN Publisher P
ON P.PublisherID = B.PublisherID
```