Your Name: _____

Lab 3a:

Create a **parent abstract** class called ChessPiece. Then create child classes called Pawn, Knight, Bishop, Rook, Queen, and King.

The ChessPiece class has an instance variable for value (an int), indicating how 'important' it is, which is set by the constructor parameter. It also has an accessor (getter) and mutator (setter) method for it. The value of each class is:

Pawn	1
Knight	2
Bishop	3
Rook	5
Queen	9
King	1000

This class also has an **abstract method** called move().

The ChessPiece class overrides the toString() method.

Each of the six ChessPiece subclasses further overrides the toString() method. Each of the six ChessPiece subclasses also implements the move() method, to System.out.println() how this particular piece moves:

Pawn	“forward 1”
Knight	“like an L”
Bishop	“diagonally”
Rook	“horizontally or vertically”
Queen	“like a bishop or a rook”
King	“one square”

Note: Use the @Override annotation every time you override a method.

Demonstrate your completed project to your instructor.

Checked by: _____

Lab 3b:

Continue from Lab 3a, the ChessPiece class and its six subclasses.

The ChessPiece class must override the equals() method (and therefore also the hashCode method) as follows:

If two ChessPiece objects have the same value of each other, they are considered equal.

The Pawn class must contain two new instance variables:

boolean hasBeenPromoted;

ChessPiece newPiece;

In the game of chess, when a Pawn reaches the far side of the board, it is exchanged for another ChessPiece; for example, a Pawn can "become" a Rook, or a Queen, etc…. It cannot become a King or Pawn though. Enforce these rules in a new method called **public void promote(ChessPiece newPiece)**.

Override the equals() method of the Pawn class so that Pawns are NOT equal if one has been promoted and another has not. Pawns are also NOT equal if they have been promoted to different ChessPiece types.

Note: Use the @Override annotation every time you override a method.

Demonstrate your completed project to your instructor.

Checked by: _____