HW 5 Problem 1

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1

X m(X y, String s) is an overload method because it uses different types to construct the same object, because X is a subclass of Object.

Z m(Y y, String s) is also an overload method because it uses different types to construct the same object, because Y is a subclass of X which is a subclass of Object.

2

No, a constructor created inside of class B will only be used for that class and can never be used for an object A, although an object B can be constructed with a class A constructor.

3

We can throw Exception and/or IOException. Since A.m throws IOException, that means B.m can throw IOException and/or Exception because IOException is a subclass of Exception.

4

Isosceles triangle is not a true subtype of triangle because preconditions are the same, and postconditions are weaker.

Squid is not a true subtype of Vertebrate because neckBones() returns 0, and the postcondition of neckBones() in Vertebrate states that it must return a value > 0.
Human is a true subtype of Vertebrate because postcondition of neckBones() is stronger: $=7$ stronger than > 0.

Mountain bike is a true subtype of Bicycle because Mountain Bike is a refinement of Bicycle

Concurrent Account is a true subtype of Account because the addition of a throws clause only improves strength and nothing else is changed.