

One

	default	private	protected	public
Same Class	Yes	Yes	Yes	Yes
Same package subclass	Yes	No	Yes	Yes
Same package non-subclass	Yes	No	Yes	Yes
Different package subclass	No	No	Yes	Yes
Different package non-subclass	No	No	No	Yes

Two

Factor	Interface	Abstract class
Speed	Slow	Fast
Multiple Inheritances	Implement several Interfaces	Only one abstract class
Structure	Abstract methods	Abstract & concrete (not abstract) methods
When to use	Future enhancement	To avoid independence
Inheritance/ Implementation	A Class can implement multiple interfaces	The class can inherit only one Abstract Class
Default Implementation	While adding new stuff to the interface, it is a nightmare to find all the implementors and implement newly defined stuff.	In case of Abstract Class, you can take advantage of the default implementation.
Access Modifiers	The interface does not have access modifiers. Everything defined inside the interface is assumed public modifier.	Abstract Class can have an access modifier.
When to use	It is better to use interface when various implementations share only method signature. Polymorphic hierarchy of value types.	It should be used when various implementations of the same kind share a common behavior.
Data fields	the interface cannot contain data fields.	the class can have data fields.
Multiple Inheritance Default	A class may implement numerous interfaces.	A class inherits only one abstract class.
Implementation	An interface is abstract so that it can't provide any code.	An abstract class can give complete, default code which should be overridden.
Use of Access modifiers	You cannot use access modifiers for the method, properties, etc.	You can use an abstract class which contains access modifiers.
Usage	Interfaces help to define the peripheral abilities of a class.	An abstract class defines the identity of a class.
Defined fields	No fields can be defined	An abstract class allows you to define both fields and constants
Inheritance	An interface can inherit multiple interfaces but cannot inherit a class.	An abstract class can inherit a class and multiple interfaces.
Constructor or destructors	An interface cannot declare constructors or destructors.	An abstract class can declare constructors and destructors.
Limit of Extensions	It can extend any number of interfaces.	It can extend only one class or one abstract class at a time.
Abstract keyword	In an abstract interface keyword, is optional for declaring a method as an abstract.	In an abstract class, the abstract keyword is compulsory for declaring a method as an abstract.
Class type	An interface can have only public abstract methods.	An abstract class has protected and public abstract methods.

Three

Four

Five

Six

Seven

Eight

Nine

Property \ Map	HashMap	TreeMap
Ordering	not guaranteed	sorted, natural ordering
get / put / remove complexity	$O(1)$	$O(\log(n))$
Inherited interfaces	Map	Map NavigableMap SortedMap
NULL values / keys	allowed	only values
Iterator.remove()	$O(1)$	$O(n/2)$ average
ListIterator.add(E element)	$O(1)$	$O(n/2)$ average
Requirements for Keys	Equals() and hashCode() needs to be overwritten.	Equals() and hashCode() needs to be overwritten.
		Comparator needs to be supplied for key implementation, otherwise natural order will be used to sort the keys.

**TreeMap**

**LinkedHashMap**