

CS 304 Homework Assignment 1 Due: 11:59pm, Thursday, September 14th

Short Answers

P1. (4pts, 1pt each) Q16 on page 59

- a) `Temp = date1.getDay();` this is valid because the `getDay()` method is in the `Date` class and therefore useable by the `Date` object created.
- b) `Temp = date2.getYear();` Although the object created is in the `IncDate` class, the `getYear()` method is inherited.
- c) `date1.increment();` only classes of the `IncDate` can use the `increment` method due to inheritance
- d) `date2.increment();` valid because object is `IncDate` class and therefore can use the `increment` method.

d)

P2. (4pts) Q32 on page 63

552000

552000

562000

552000

P3. (3pts) Q34 on page 63

Not equal

Equal

Equal

P4. (6pts) Q43 on page 65

- a) $O(N)$
- b) $O(N^2)$
- c) $O(\log N)$ base 2
- d) $O(1)$
- e) $O(N)$
- f) $O(N)$

P5. (6pts, 2pts each) Multiple choices

(1) Inheritance is A. an organizational mechanism B. a reuse mechanism C. a means to create a new class from an existing class D. a way to define an "is-a" hierarchy of classes **E. all of the above**

(2) Which of the following represents "quadratic" time? **A. $3n+5n^2+1$** B. $n\log n+2n+n^3$ C. n^9+n^5+1 D. $2n+n^2+5$ E. $10n+100$

(3) Objects can represent both A. space and time efficiency B. variables and constants **C. information and behavior** D. classes and inheritance E. methods and constructors