

Homework 3

1.

B: $\langle x, 2 \rangle, \langle y, 3 \rangle, \langle x, 4 \rangle, \langle a, 5 \rangle$
A: $\langle x, 0 \rangle, \langle z, 2 \rangle, \langle y, 3 \rangle, \langle a, 10 \rangle$
C: $\langle y, 9 \rangle, \langle x, 1 \rangle, \langle z, 4 \rangle, \langle a, 5 \rangle$
A: $\langle x, 0 \rangle, \langle y, 3 \rangle, \langle a, 9 \rangle, \langle z, 4 \rangle$
D: $\langle a, 6 \rangle, \langle y, 3 \rangle, \langle a, 9 \rangle, \langle z, 4 \rangle$

2.

- a. (a) $+ * a b * / c d 3$
(b) $a b * c d / 3 * +$
(c) $(+(* a b)(* (/ c d) 3))$
- b. (a) $- * + a b c * d - e 2$
(b) $a b + c * d e 2 - * -$
(c) $(- (* (+ a b) c)(* d (- e 2)))$
- c. (a) $- a * b + c / - d 1 + e 7$
(b) $a b c d 1 - e 7 + / + * -$
(c) $(- a(* b(+ c (/ (- d 1)(+ e 7))))))$

3. $0 < 3 == 3 < 2$

- a. Python: $(0 < 3)$ and $(3 == 3)$ and $(3 < 2)$ - **FALSE**
- b. C-like: $(0 < (3 == 3) < 2)$ - **TRUE**
- c. Fortran: $((0 < 3) == 3) < 2$ - **TRUE**

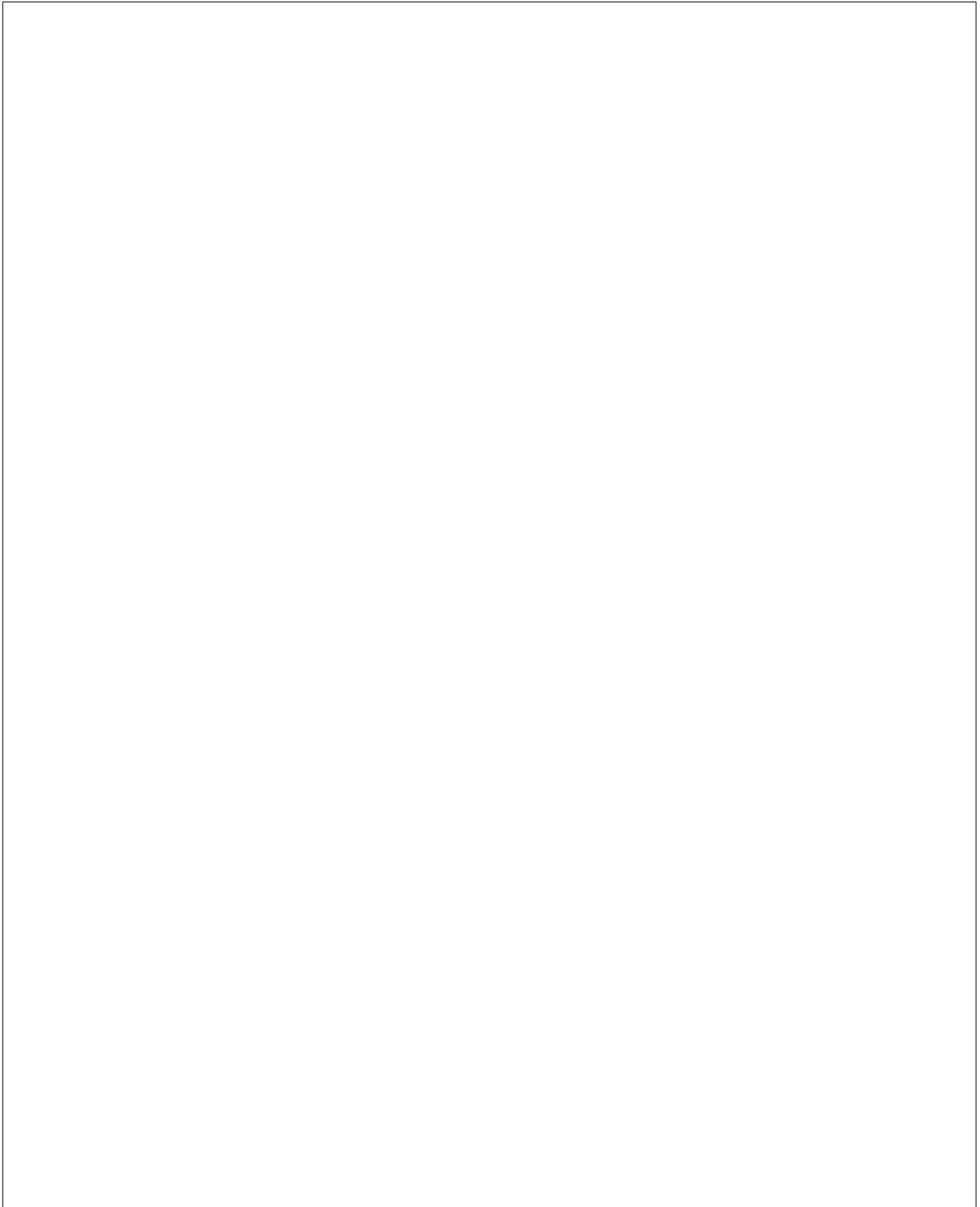
4.

- FileNotFoundError
- ValueError
- IsADirectoryError
- IOError - Permission Denied

5.

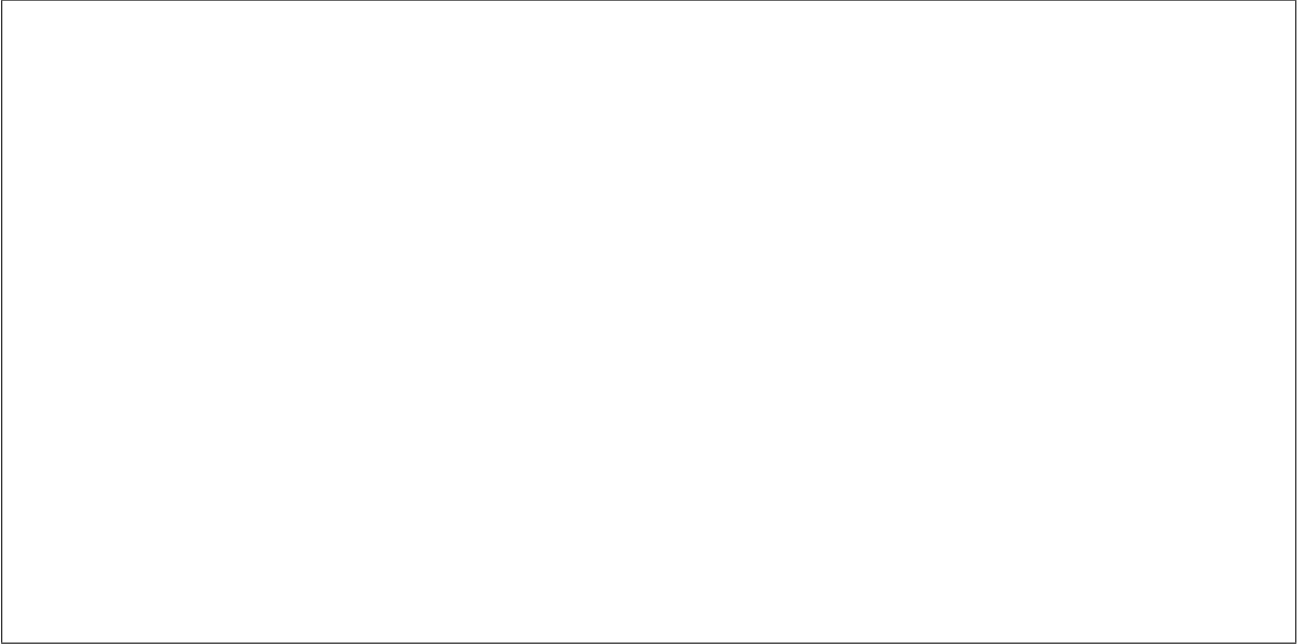


6.



7.

(a) Reference Count (no garbage collection)



(b) Mark-Sweep



(c) Copy Collection

