

**Computer Science I – Fall 2011**  
**Lab #6: Stack Applications – Infix/Postfix Expressions**  
**Solutions**

**Part 1**

- 1)  $11 * (6 - 5 + 3) - (3 + 7) / 2$
- |    | A                         | B | C          |
|----|---------------------------|---|------------|
| a. | Out: 11                   |   | Stack: * ( |
| b. | Out: 11 6 5 - 3 +         |   | Stack: *   |
| c. | Out: 11 6 5 - 3 + * 3 7 + |   | Stack: - / |
- 
- 2)  $42 - 16 / (8 - 4 * 3) + 10$
- |    | A                        | B | C              |
|----|--------------------------|---|----------------|
| a. | Out: 42 16               |   | Stack: -       |
| b. | Out: 42 16 8 4           |   | Stack: - / ( - |
| c. | Out: 42 16 8 4 3 * - / - |   | Stack: +       |
- 
- 3)  $12 - (4 - 8) - 6$
- |    | A               | B | C            |
|----|-----------------|---|--------------|
| a. | Out: 12         |   | Stack:       |
| b. | Out: 12 4       |   | Stack: - ( - |
| c. | Out: 12 4 8 - - |   | Stack: -     |
- 
- 4)  $(2 + 9 + 6 - 11) / 2 + 6 + 3 - 7$
- |    | A                         | B | C          |
|----|---------------------------|---|------------|
| a. | Out: 2 9 + 6              |   | Stack: ( + |
| b. | Out: 2 9 + 6 + 11 -       |   | Stack:     |
| c. | Out: 2 9 + 6 + 11 - 2 / 6 |   | Stack: +   |
- 
- 5)  $13 - (18 + (10 - 7 + 3) * 2 - 10) / ((10 - 6) * 3 - 2)$
- |    | A   | B | C              |
|----|---|---|----------------|
| a. | Out: 13 18 10                             |   | Stack: - ( + ( |
| b. | Out: 13 18 10 7 - 3 + 2                   |   | Stack: - ( + * |
| c. | Out: 13 18 10 7 - 3 + 2 * + 10 - 10 6 - 3 |   | Stack: - / ( * |

**Part 2**

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|---|------|
| 1) 11 6 5 - 3 + * 3 7 + 2 / -                     | = 39 |
| 2) 42 16 8 4 3 * - / - 10 +                       | = 56 |
| 3) 12 4 8 - - 6 -                                 | = 10 |
| 4) 2 9 + 6 + 11 - 2 / 6 + 3 + 7 -                 | = 5  |
| 5) 13 18 10 7 - 3 + 2 * + 10 - 10 6 - 3 * 2 - / - | = 11 |