Homework 02, Shaun Stanley

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Problem 3)

(i) 92 - 32 using 1's complement

92 to binary = 1011100

32 to binary = 100000

∴ (10 11 10 0) − (10 00 00)

1's

∴ (10 11 10 0) + (101 11 11)

```
    1 0 1 1 1 0 0
  + 1 0 1 1 1 1 1
carry → (1) 0 1 1 1 0 1 1

      0 1 1 1 0 1 1
  +               1
      0 1 1 1 1 0 0
```

Answer ∴ 0 1 1 1 1 0 0

(ii) 92 - 32 using 2's complement

92 to binary = 1 0 1 1 1 0 0

32 to binary = 1 0 0 0 0 0

∴ 1011100 − 0100000

∴ 1011100 + (− 0100000)

1s complement of 0100000

1011111

2s complement of

```
    1011111
  +       1
    1100000
```

```
∴   1 0 1 1 1 0 0
  + 1 1 0 0 0 0 0
  (1) 0 1 1 1 1 0 0
carry
```

$$\therefore \quad 0\,1\,1\,1\,1\,0\,0$$
$$+ \qquad\qquad\qquad 1$$
$$0\,1\,1\,1\,1\,0\,1$$

Ans $0\,1\,1\,1\,1\,0\,1$