Part I What would be stored in the registers and CF after the three instructions are executed.

	Instructions	After values in Hex ✓No Change
| 1 | ```
mov    cl, 0x7A
mov    dl, 0xCD
sub    cl, dl
``` Show work here. | CL: **0x AD**   DL: **0x CD**   CF: **1**   OF: **1**<br><br>7A−CD = 7A+(2's of CD)<br>= 7A+33   CD>AD so CF=1<br><br>7A<br>+33   7A: −118<br>AD   CD: −51<br>−67 = 0xBD not 0xAD so OF=1 |
| 2 | ```
mov    eax, 40000000h
mov    ebx, 20000h
mul    ebx
``` Show work here. | EDX: **0x 8000**   EAX: **0x 0**   CF: **0**<br><br>4 000 0000<br>x    2 0000<br>8000 8000, 0000 0000,<br>EDX     EAX<br>Answer fits in EAX so CF=0 |
| 3 | ```
mov    al, 10
mov    bl, -6
imul   bl
``` Show work here. | AH: **0x FF**   AL: **0x C4**   CF: **0**<br><br>10<br>x −6<br>−60 → 0xFFC4<br>−128 < −60 < 127, so CF=0 |
| 4 | ```
mov    ax, 20
mov    bx, 40
imul   bx
``` Show work here. | DX: **0x 0**   AX: **0x 320**   CF: **0**<br>4 most sig fig    16 least sig fig<br><br>20<br>x40<br>800 → 0x320 |

| 5 | ```
mov    ah, 0
mov    al, -34
mov    bl, 5
idiv   bl
``` $34_{10} = 22_{16} \xrightarrow{\text{2's}} DE_{16}$<br><br>[0: −34] ÷ 5   00DE÷5<br>AH  AL  bl   AH AL<br>00DE = 2222₁₀<br>÷ 5<br>Q = 44 = 0x2C<br>R = 2 = 0x2 | AH: **0x2**   AL: **0x2C**<br>↑ Remainder   ↑ Quotient |
| 6 | ```
mov    ax, -34
mov    bl, 5
idiv   bl
``` −34 = FFDE₁₆<br><br>−34÷5<br>[FF DE]<br>AH  AL<br>−34<br>÷ 5<br>Q = −6 = 0xFA<br>R = −4 = 0xFC | AH: **0xFC**   AL: **0xFA**<br>↑ Remainder   ↑ Quotient |
| 7 | ```
mov    al, -34
cbw
mov    bl, 5
idiv   bl
``` → AL = −34<br>→ [AH:AL] = −34<br>−34 ÷ 5<br>−34<br>÷ 5<br>Q = −6 = 0xFA<br>R = −4 = 0xFC | AH: **0xFC**   AL: **0xFA**<br>↑ Remainder   ↑ Quotient |
| 8 | ```
mov    ax, -34
cwd
mov    bx, 5
idiv   bx
``` → AL = −34<br>[DX:AL] double word<br>−34 ÷ 5<br>−34<br>÷ 5<br>Q = −6 = 0xFFFA<br>R = 4 = 0xFFFC ⎬ Because of CWD extends | DX: **0xFFFC**   AX: **0xFFFA**<br>Remainder   Quotient |
| 9 | ```
mov    eax, -34
cdq
mov    ebx, -5
idiv   ebx
``` → AL = −34<br>[EDX:EAX] quad word<br>−34 ÷ −5<br>−34<br>÷ −5<br>Q = 6 = 0x0000 0006<br>R = −4 = 0xFFFF FFFC | EDX: **0xFFFF FFFC**   EAX: **0x 6**<br>Remainder   Quotient |
| 10 | ```
mov    rax, 34
cqo
mov    rbx, -5
idiv   rbx
``` → AL = 34<br>[RDX:RAX]<br>34 ÷ −5<br>34<br>÷ −5<br>Q = −6 = 0xFFFF FFFF FFFF FFFA<br>R = 4 = 0x0000 0000 0000 0004 | RDX: **0x 4**   RAX: **0xFFFF FFFF FFFF FFFA**<br>Remainder   Quotient |