

B1.

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x := 48;
y := 18;
temp := 0;
remainder := 0;
while (y != 0) do (
    temp := x;
    x =: y;
    while (tempt >= y) do (
        tempt := tempt - y;
        remainder := tempt
    );
    y := remainder;
)

```

B2.

C [x := 3] = C [3]; pop M[x]; = push 3; pop M[x];	C [y := 1] = C [1]; pop M[y]; = push 1; pop M[y];
C [while (x > 0) do (y := y * x; x := x - 1)] = lab 1; C [x > 0]; jz 2; C [y := y * x]; C [x := x - 1]; jmp 1; lab 2; = lab 1; C [x]; C [0]; gt ; jz 2; C [y * x]; pop M[y]; C [x - 1]; pop M[x]; jmp 1; lab 2; = lab 1; push M[x]; push 0; gt ; jz 2; C [y]; C [x]; mul ; pop M[y]; C [x]; C [1]; sub ; pop M[x]; jmp 1; lab 2; = lab 1; push M[x]; push 0; gt ; jz 2; push M[y]; push M[x]; mul ; pop M[y]; push M[x]; push 1; sub ; pop M[x]; jmp 1; lab 2;	
Answer: push 3; pop M[x]; push 1; pop M[y]; lab 1; push M[x]; push 0; gt ; jz 2; push M[y]; push M[x]; mul ; pop M[y]; push M[x]; push 1; sub ; pop M[x]; jmp 1; lab 2; hlt	

B3.

a).

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x := 32;
y := 6;
rem := 0;
while x >= y do (
    x := x - y;
    rem := x;
)

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b).

C [[x := 32]] = C [[32]]; pop M[x]; = push 32; pop M[x];	C [[y := 6]] = C [[6]]; pop M[y]; = push 6; pop M[y];	C [[rem := 0]] = C [[0]]; pop M[rem]; = push 0; pop M[rem];
C [[while (x >= y) do (x := x - y; rem := x)]] = lab 1; C [[x >= y]]; jz 2; C [[x := x - y]]; C [[rem := x]]; jmp 1; lab 2; = lab 1; C [[x]]; C [[y]]; ge ; jz 2; C [[x - y]]; pop M[x]; C [[x]]; pop M[rem]; jmp 1; lab 2; = lab 1; push M[x]; push M[y]; ge ; jz 2; C [[x]]; C [[y]]; sub ; pop M[x]; push M[x]; pop M[rem]; jmp 1; lab 2; = lab 1; push M[x]; push M[y]; ge ; jz 2; push M[x]; push M[y]; sub ; pop M[x]; push M[x]; pop M[rem]; jmp 1; lab 2;		
Answer: push 32; pop M[x]; push 6; pop M[y]; push 0; pop M[rem]; lab 1; push M[x]; push M[y]; ge ; jz 2; push M[x]; push M[y]; sub ; pop M[x]; push M[x]; pop M[rem]; jmp 1; lab 2; hlt		