**Вариант №3**

**№1**

**a) (λx.(λy.y))((λz.z)(λz.z))**

Апликативый метод:(λx.(λy.y))((λz.z)(λz.z)) =

= (λx.(λy.y))(λz.z) = λy.y

Нормальный метод:(λx.(λy.y))((λz.z)(λz.z)) =

= λy.y

**б) (λu.(λx.ux)(λx.xu))(λy.y)**

Апликативый метод:(λu.(λx.ux)(λx.xu))(λy.y) =

= (λu.u(λx.xu))(λy.y) = (λu.u(λx.xu))(λy.y) =

λy.y(λx.x(λy.y)) = (**λ**x.x)(λy.y)

Нормальный метод:(λu.(λx.ux)(λx.xu))(λy.y) =

= (λx. (λy.y)x) ((λx.x)(λy.y)) = (λy.y) ((λx.x) (λy.y)) = (λx.x)(λy.y)

**№2**

**а.CSI** = CSI

**б.C(CI(KI))K** = C(C(KI))K

**в.B(BC)(CI(IK))(KS(SWW)** =

BC(CI(IK)(KS(SWW))) =

C(CI(IK)(KS(SWW))) =

= C(C(IK)(S)) = C(C(K)(S)).

№3

**Add 3 5** = (λmnfx.nf(mfx))(λf1x1.f1(f1(f1x1)))(λf2x2.f2(f2(f2(f2(f2x2))))) = (λm.(λnfx.nf(mfx)))(λf1x1.f1(f1(f1x1)))(λf2x2.f2(f2(f2(f2(f2x2))))) = (λnfx.nf((λf1x1.f1(f1(f1x1)))fx))( λf2x2.f2(f2(f2(f2(f2x2))))) = (λfx.((λf2x2.f2(f2(f2(f2(f2x2)))))f((λf1x1.f1(f1(f1x1)))f2)))) = λfx.((λf2x2.f2(f2(f2(f2(f2x2)))))f((λf1x1.f1(f1(f1x1))fx))) = λfx.((λf2.λx2.f2(f2(f2(f2(f2x2)))))f((λf1x1.f1(f1(f1x1))fx))) = λfx.(λx2.f(f(f(f(fx2))))((λf1x1.f1(f1(f1x1))fx))) = λfx.(λx2.f(f(f(f(fx2))))((λf1x1.f1(f1(f1x1))fx))) =

λfx.(f(f(f(f(f((λf1x1.f1(f1(f1x1))fx))))))) =

λfx.f(f(f(f(f(f(f(fx))))))) = 8