13.4.6

$$(a-1+z)M(a, b, z)+(b-a)M(a-1, b, z)+(1-b)M(a, b-1, z)=0$$

13.4.7

$$b(1-b+z)M(a, b, z)+b(b-1)M(a-1, b-1, z)-azM(a+1, b+1, z)=0$$

13.4.8 $$M'(a, b, z)=\frac{a}{b}M(a+1, b+1, z)$$

13.4.9 $$\frac{d^n}{dz^n}\{M(a, b, z)\}=\frac{(a)_n}{(b)_n}M(a+n, b+n, z)$$

13.4.10 $$aM(a+1, b, z)=aM(a, b, z)+zM'(a, b, z)$$

13.4.11

$$(b-a)M(a-1, b, z)=(b-a-z)M(a, b, z)+zM'(a, b, z)$$

13.4.12

$$(b-a)M(a, b+1, z)=bM(a, b, z)-bM'(a, b, z)$$

13.4.13

$$(b-1)M(a, b-1, z)=(b-1)M(a, b, z)+zM'(a, b, z)$$

13.4.14

$$(b-1)M(a-1, b-1, z)=(b-1-z)M(a, b, z)+zM'(a, b, z)$$

13.4.15

$$U(a-1, b, z)+(b-2a-z)U(a, b, z)+a(1+a-b)U(a+1, b, z)=0$$

13.4.16

$$(b-a-1)U(a, b-1, z)+(1-b-z)U(a, b, z)+zU(a, b+1, z)=0$$

13.4.17

$$U(a, b, z)-aU(a+1, b, z)-U(a, b-1, z)=0$$

13.4.18

$$(b-a)U(a, b, z)+U(a-1, b, z)-zU(a, b+1, z)=0$$

13.4.19

$$(a+z)U(a, b, z)-zU(a, b+1, z)+a(b-a-1)U(a+1, b, z)=0$$

13.4.20

$$(a+z-1)U(a, b, z)-U(a-1, b, z)+(1+a-b)U(a, b-1, z)=0$$

13.4.21 $$U'(a, b, z)=-aU(a+1, b+1, z)$$

13.4.22

$$\frac{d^n}{dz^n}\{U(a, b, z)\}=(-1)^n(a)_nU(a+n, b+n, z)$$

13.4.23

$$a(1+a-b)U(a+1, b, z)=aU(a, b, z)+zU'(a, b, z)$$

13.4.24

$$(1+a-b)U(a, b-1, z)=(1-b)U(a, b, z)-zU'(a, b, z)$$

13.4.25 $$U(a, b+1, z)=U(a, b, z)-U'(a, b, z)$$

13.4.26

$$U(a-1, b, z)=(a-b+z)U(a, b, z)-zU'(a, b, z)$$

13.4.27

$$U(a-1, b-1, z)=(1-b+z)U(a, b, z)-zU'(a, b, z)$$

13.4.28 $$2\mu M_{\kappa-\frac{1}{2}, \mu-\frac{1}{2}}(z)-z^{\frac{1}{2}}M_{\kappa, \mu}(z)=2\mu M_{\kappa+\frac{1}{2}, \mu-\frac{1}{2}}(z)$$

13.4.29

$$(1+2\mu+2\kappa)M_{\kappa+1, \mu}(z)-(1+2\mu-2\kappa)M_{\kappa-1, \mu}(z)=2(2\kappa-z)M_{\kappa, \mu}(z)$$

13.4.30

$$W_{\kappa+\frac{1}{2}, \mu}(z)-z^{\frac{1}{2}}W_{\kappa, \mu+\frac{1}{2}}(z)+(\kappa+\mu)W_{\kappa-\frac{1}{2}, \mu}(z)=0$$

13.4.31

$$(2\kappa-z)W_{\kappa, \mu}(z)+W_{\kappa+1, \mu}(z)=(\mu-\kappa+\tfrac{1}{2})(\mu+\kappa-\tfrac{1}{2})W_{\kappa-1, \mu}(z)$$

13.4.32

$$zM'_{\kappa, \mu}(z)=(\tfrac{1}{2}z-\kappa)M_{\kappa, \mu}(z)+(\tfrac{1}{2}+\mu+\kappa)M_{\kappa+1, \mu}(z)$$

13.4.33 $$zW'_{\kappa, \mu}(z)=(\tfrac{1}{2}z-\kappa)W_{\kappa, \mu}(z)-W_{\kappa+1, \mu}(z)$$