

## A2c. Specializations

Check of the relation between  $M_{\kappa, s}$  and  $W_{\kappa, s}$

```
In[ ]:= WhittakerM[kap, kap - 1/2, tau] E^(tau/2) // Simplify
Series[%, {tau, 0, 20}]
```

```
Out[ ]:= e^{tau/2} WhittakerM[kap, -1/2 + kap, tau]
```

```
Out[ ]:= tau^{kap} (1 + O[tau]^{21})
```

Mathematica seems not to know this specialization

```
In[ ]:= WhittakerM[kap, kap - 1/2, tau] // FullSimplify
```

```
Out[ ]:= WhittakerM[kap, -1/2 + kap, tau]
```

Check of relation between  $V_{\kappa, s}$  and  $M_{\kappa, s}$ .

```
In[ ]:= WhittakerM[kap, -kap - 1/2, tau] E^(-tau/2)
Series[%, {tau, 0, 10}]
```

```
Out[ ]:= e^{-tau/2} WhittakerM[kap, -1/2 - kap, tau]
```

```
Out[ ]:= tau^{-kap} (1 + O[tau]^{11})
```

```
In[ ]:= WhittakerV[kap, kap + 1/2, tau] / WhittakerM[kap, -kap - 1/2, tau] /. Whsub // FullSimplify
```

```
Out[ ]:= -e^{-i kap \pi}
```