

$$f(x_1, x_2) = e^{x_2}(x^2 - x_1/x_2)$$

For function f - Draw the computation graph, Fill in the blanks for the forward pass AD and reverse pass AD tables at $(x_1, x_2) = (1, 2)$

Part 1 - Computation Graph

Forward Primal Trace

v_{-1}	= x_1	= 1
v_0	= x_2	= 2
v_1	= e^{v_0}	= 7.389
v_2	= v_{-1}^2	= 1
v_3	= $\frac{v_{-1}}{v_0}$	= 0.5
v_4	= $v_2 - v_3$	= 0.5
v_5	= $v_4 v_1$	= 3.694
y	= v_5	= 3.694

Part 2 - Forward Tangent Trace (Find $\frac{\partial f}{\partial x_1}$)

v_{-1}^{\cdot}	=	= 1
v_0^{\cdot}	=	= 0
v_1^{\cdot}	=	= 0
v_2^{\cdot}	=	= 2
v_3^{\cdot}	=	= 0.5
v_4^{\cdot}	=	= 1.5
v_5^{\cdot}	=	= 11.08
\dot{y}	=	= 11.08

Part 3 - Reverse Adjoint Trace

v_{-1}^-	=	= 11.08
\bar{v}_0	=	= 5.54
\bar{v}_1	=	= 0.5
\bar{v}_2	=	= 7.389
\bar{v}_3	=	= -7.389
\bar{v}_4	=	= 7.389
\bar{v}_5	=	= 1