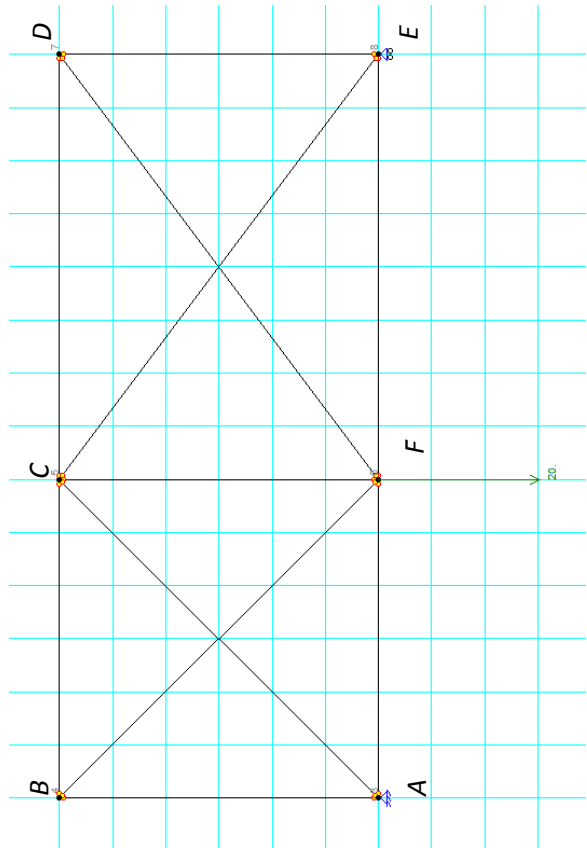


CE 474 - Structural Analysis II

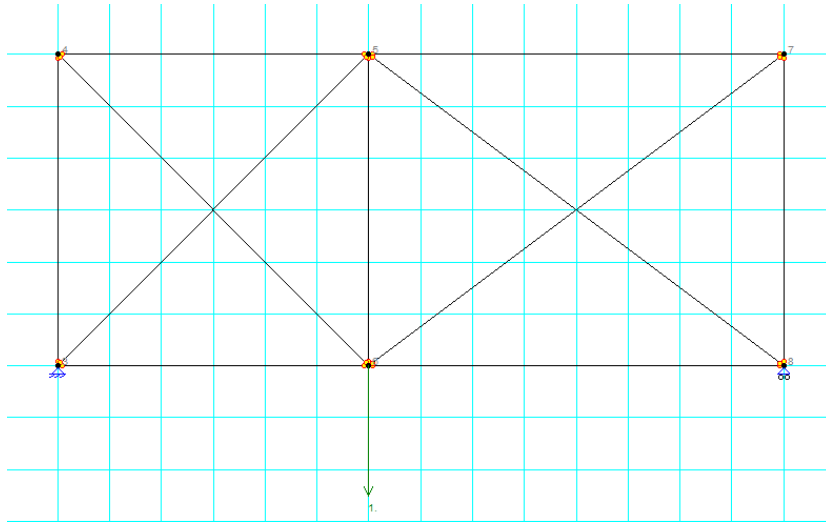
Example of virtual force method applied to a statically indeterminate truss structure

Member	Length (ft)	Area (in ²)	Virtual System (#1) (Original Structure)			Virtual System (#2) (Relaxed Structure)			Virtual System (#3) (Relaxed Structure)		
			Real F	Real F * L / EA	Virtual F	Virt F * (Real F * L / EA)	Virtual F	Virt F * (Real F * L / EA)	Virtual F	Virt F * (Real F * L / EA)	
AB	6	6.5	-6.6	-73.1/E	-0.33	24.1/E	41.8/E	0	0	0	
BC	6	6.5	-6.6	-73.1/E	-0.33	24.1/E	41.8/E	0	0	0	
CD	8	6.5	-6.496	-95.9/E	-0.32	31.2/E	54.8/E	0	0	0	
DE	6	6.5	-4.872	-54./E	-0.24	13.1/E	23.1/E	0	0	0	
EF	8	6.5	4.933	72.9/E	0.25	18./E	0	0.5714	0	41.6/E	
FA	6	6.5	4.829	53.5/E	0.24	12.9/E	0	0.5714	0	30.6/E	
CF	6	3.25	8.528	188.9/E	0.43	80.6/E	0	0	1	188.9/E	
AC	8.49	3.75	-6.829	-185.4/E	-0.34	63.3/E	0	0	-0.8081	149.8/E	
BF	8.49	3.75	9.334	253.4/E	0.47	118.3/E	0.8081	204.8/E	0	0	
FD	10	3.75	8.12	259.8/E	0.41	105.5/E	0.7143	185.6/E	0	0	
CE	10	3.75	-6.166	-197.3/E	-0.31	60.8/E	0	-0.7143	0	140.9/E	
			SUM			551.9/E			551.9/E		

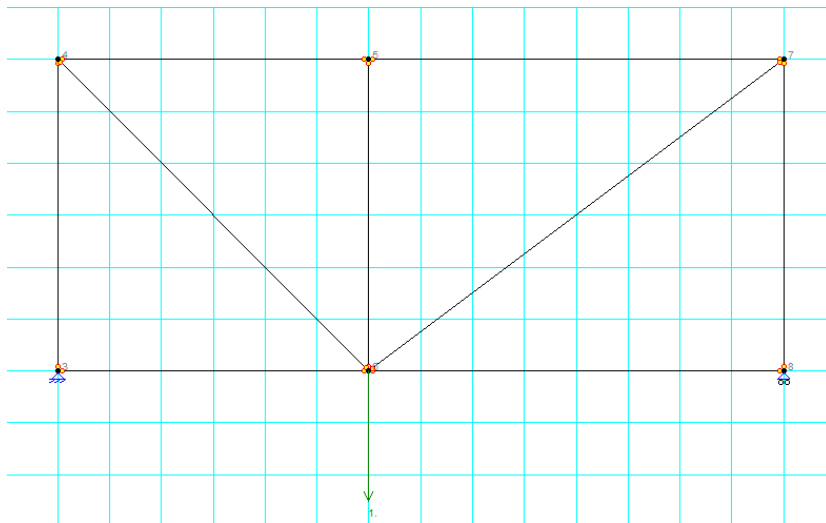
REAL SYSTEM



VIRTUAL SYSTEM (#1)



VIRTUAL SYSTEM (#2)



VIRTUAL SYSTEM (#3)

