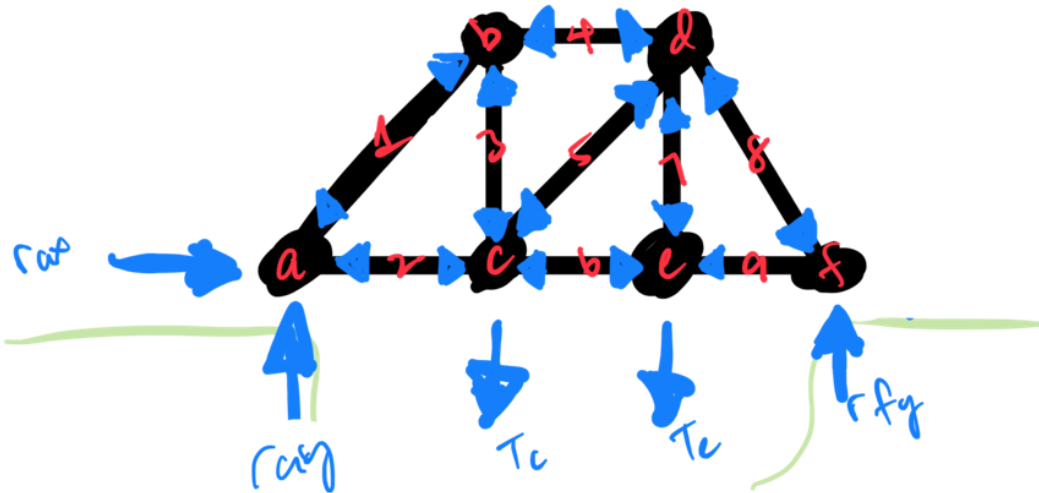


# HW3 Problem 3



	$f_1$	$f_2$	$f_3$	$f_4$	$f_5$	$f_6$	$f_7$	$f_8$	$f_9$	$r_{ax}$	$r_{ay}$	$r_{fy}$		$f_e$
$a_x$	-1	1	0	0	0	0	0	0	0	1	0	0	$\begin{bmatrix} f_1 \\ f_2 \\ f_3 \\ f_4 \\ f_5 \\ f_6 \\ f_7 \\ f_8 \\ f_9 \end{bmatrix}$	$\begin{bmatrix} 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \end{bmatrix}$
$a_y$	0	0	0	0	0	0	0	0	0	0	1	0		
$b_x$	0	0	0	-1	0	0	0	0	0	0	0	0		
$b_y$	0	0	0	0	0	0	0	0	0	0	0	0		
$c_x$	0	1	0	0	-1	-1	0	0	0	0	0	0		
$c_y$	0	0	-1	0	-1	0	0	0	0	0	0	0		
$d_x$	0	0	0	0	0	0	-1	0	0	0	0	0		
$d_y$	0	0	0	0	0	0	0	-1	0	0	0	0		
$e_x$	0	0	0	0	0	0	0	0	-1	0	0	0		
$e_y$	0	0	0	0	0	0	0	0	0	0	0	0		
$f_x$	0	0	0	0	0	0	0	0	0	0	0	1	$\begin{bmatrix} f_{ex} \\ f_{ey} \end{bmatrix}$	$\begin{bmatrix} 0 \\ 0 \end{bmatrix}$
$f_y$	0	0	0	0	0	0	0	0	0	0	0	0		

How will bridge handle...  
if too truck?

15 ton truck.  
Bridge sustains a 15 ton truck. Beams 1, 8 have most stress w/ 8 tons of tension on each. But this is below their 11 ton failure threshold.

20 ton truck?

The bridge can also sustain a 20 ton truck. However... it begins to fail at 22 tons.

22 ton truck?

The bridge CANNOT sustain a 22 ton truck. Both beams 1, 8 fail due to excessive tension of  $> 11$  tons.

