<http://www.mathalino.com/reviewer/engineering-mechanics/resultant-non-concurrent-force-system>

The resultant of non-concurrent force system is defined according to magnitude, inclination, and position.

The magnitude of the resultant can be found as follows







The inclination from the horizontal is defined by



The position of the resultant can be determined according to the principle of moments.









Where,
Fx = component of forces in the x-direction
Fy = component of forces in the y-direction
Rx = component of thew resultant in x-direction
Ry = component of thew resultant in y-direction
R = magnitude of the resultant
θx = angle made by a force from the x-axis
MO = moment of forces about any point O
d = moment arm
MR = moment at a point due to resultant force
ix = x-intercept of the resultant R
iy = y-intercept of the resultant R

<http://www.mathalino.com/reviewer/engineering-mechanics/problem-267-resultant-non-concurrent-force-system>

**Problem 267**
The Howe roof truss shown in [Fig. P-267](http://www.mathalino.com/image/mech-042-howe-truss) carries the given loads. The wind loads are perpendicular to the inclined members. Determine the magnitude of the resultant, its inclination with the horizontal, and where it intersects AB.



**Solution 267**




































 wrong equation

10007.03 x =48026.37

X =4.8 m to the right of A

 wrong equation

Thus, R = 10 778.16 N downward to the right at θx = 68.2° passing 4.8 m to the right of A.

<http://www.mathalino.com/reviewer/engineering-mechanics/problem-271-resultant-non-concurrent-force-system>

**Problem 271**
The three forces in Fig. P-270 create a vertical resultant acting through point A. If T is known to be 361 lb, compute the values of F and P.



**Solution 271**
For vertical resultant, Rx = 0 and Ry = R

















*answer*









 *answer*

<http://www.mathalino.com/reviewer/engineering-mechanics/problem-268-resultant-non-concurrent-force-system>

**Problem 268**
The resultant of four forces, of which three are shown in [Fig. P-268](http://www.mathalino.com/image/mech-043-three-forces-planar-space), is a couple of 480 lb·ft clockwise in sense. If each square is 1 ft on a side, determine the fourth force completely.

**Solution 268**
Let F4 = the fourth force and for couple resultant, R is zero.















Thus, 



Assuming F4 is above point O








d is positive, thus, the assumption is correct that F4 is above point O.

Therefore, the fourth force is 200 lb acting horizontally to the left at 5.8 ft above point O. answer