a) 2 forces of magnitude 10N act on an object . state and explain the maximum resultant force and minimum resultant force that can be obtained with these 2 forces.

b)show how would you apply these two forces to get a resultant of 10N

Solution:

$$\left|\vec{F}_1\right| = \left|\vec{F}_2\right| = 10N$$

a) Maximum resultant force when forces are directed in one way:

$$F_{max} = F_1 + F_1 = 10N + 10N = 20N$$

Minimum resultant force when forces are directed in opposite ways (forces compensate one another):

$$F_{min} = F_1 + F_1 = 10N - 10N = 0$$

b) If the resultant force is 10N , it means that $\vec{F}_1, \vec{F}_1$ and $\vec{F}$ form an equilateral triangle (because $F_1 = F_1 = F = 10N$). It means that the angle between the forces F_1 and F_1 is $\alpha = 120°$.