

# P4.1

```
syms R_x R_z F_t
B_z = 67; %[N]
B_x = 15; %[N]
F_z = cosd(10)*F_t; %[N] Achilles tendon force in z direction
F_x = sind(10)*F_t; %[N]
```

x-akselin suuntainen tasapaino  $-B_x - R_x + \sin(10) * F_t = 0$  (Balance of forces in x-axel)

z-akselin suuntainen  $B_z - R_z + \cos(10) * F_t = 0$  (Balance of forces in z-axel)

Momenttitasapaino  $0.032m * B_z - 0.026 * B_x - 0.025m * F_x + 0.0044m * F_z = 0$  (Balance of moments in z-axel)

```
A = [0,-1,sind(10);
     -1,0,cosd(10);
     0,0,-8.05*10^(-6)]
```

```
A = 3x3
      0   -1.0000   0.1736
 -1.0000      0   0.9848
      0      0  -0.0000
```

```
B = [B_x,-B_z,(-0.032*B_z+0.026*B_x)]'
```

```
B = 3x1
      15.0000
     -67.0000
     -1.7540
```

```
Answers = A\B
```

```
vastaus = 3x1
105 ×
      2.1464
      0.3782
      2.1789
```

```
ans =
315972549856313999360
1450218242818557
ans = 2.1788e+05
```