

Console

Enter the number of sequential elements(lenses) 2

Enter the focal lengths of sequential elements in order  
--> 5

--> -10

Enter the input angle(in radian)0.12

Enter the input height0.3

Enter the object distance10

Enter the distance between lenses in order  
--> 12

The lens matrices are

1. -0.2  
0. 1.

1. 0.1  
0. 1.

The image distance from the last lens of cascade is

-1.6666667

The image matrices are

1. 0.  
10. 1.

1. 0.  
-1.6666667 1.

The object distance matrices are

1. 0.  
10. 1.

1. 0.
2. 1.

The composite matrix for whole cascade of lenses

-1.2      -0.34  
2.220D-16 -0.8333333

Angular Magnification by cascade of lenses is

-1.2

Spatial Magnification by cascade of lenses is

-0.8333333

$\alpha_{out}$  is

-0.246

$x_{out}$  is

-0.25