

Model: Traffic Flow

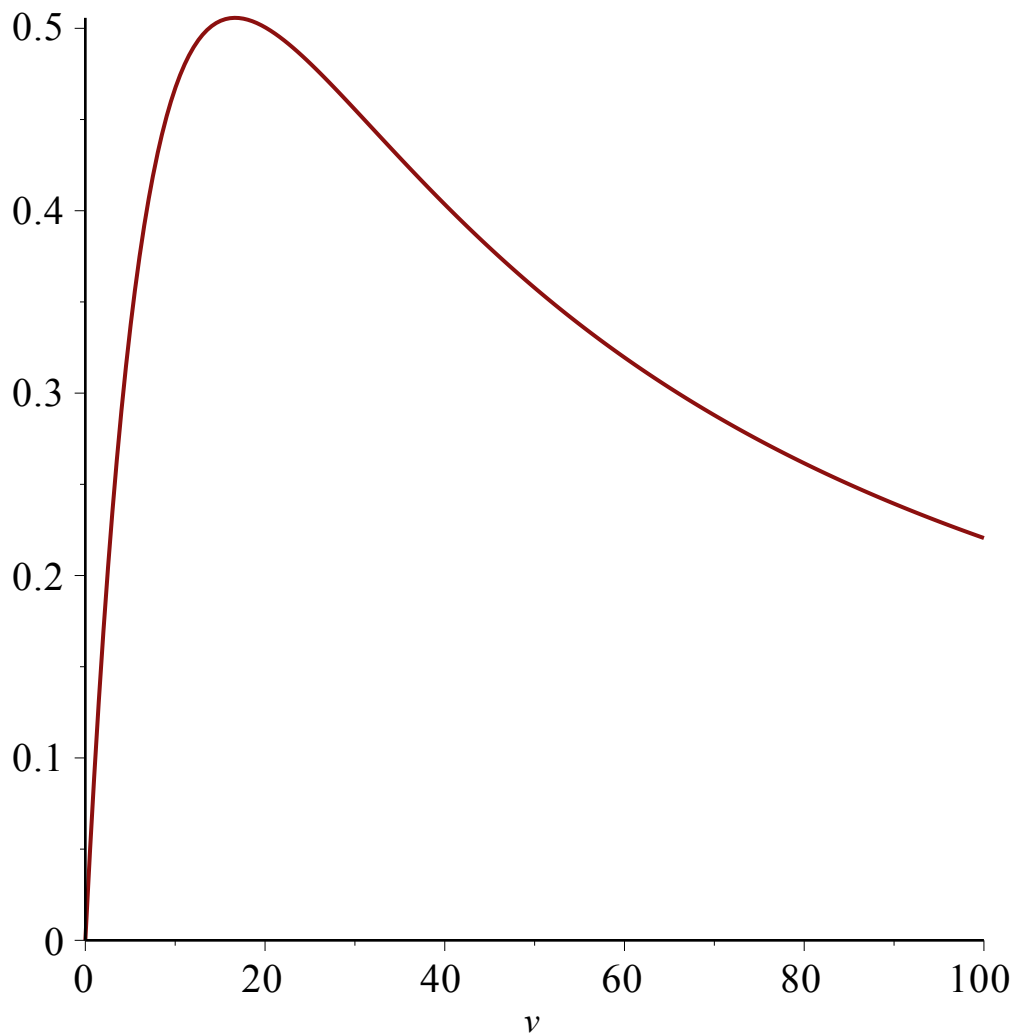
```
> restart;
> 1*mile/hour*5280*ft/(1*mile)*1*hour/(3600*sec);
```

$$\frac{22}{15} \frac{ft}{sec} \quad (1)$$

```
> f:=(22/15)*v/(1.1*v+0.054*v^2+15);
```

$$f := \frac{22}{15} \frac{v}{1.1 v + 0.054 v^2 + 15} \quad (2)$$

```
> plot(f,v=0..100);
```



```
> g:=diff(f,v);
```

$$g := \frac{22}{15 (1.1 v + 0.054 v^2 + 15)} - \frac{22}{15} \frac{v (1.1 + 0.108 v)}{(1.1 v + 0.054 v^2 + 15)^2} \quad (3)$$

```
> crit:=[solve(g=0,v)];;  
crit := [-16.66666667, 16.66666667] (4)
```

```
> subs(v=crit[1],f);  
-2.095238094 (5)
```

```
> subs(v=crit[1],1.1*v+0.054*v^2);  
-3.33333333 (6)
```

```
>
```