This is the definition of the force of mortality for the G82M table.

```
> m := t ->
  0.0005+0.00007585775*10^(0.038*t) ;
```

$$m := t \to 0.0005 + 0.00007585775\ 10^{(0.038\ t)}$$

```
> evalf(0.00007585775*10^(0.038*60)/(0.038*ln
  (10)));
```

0.1651964354

```
> p := t ->
  exp(-0.0005*t-0.1651964354*(10^(0.038*t)-1)
  );
```

$$p := t \to \mathbf{e}^{(-0.0005\ t - 0.1651964354\ (10^{(0.038\ t)} - 1))}$$

```
> evalf(p(10));
```

0.7897157472

```
> evalf( Int( p(t), t=0..70 ));
```

18.52391857

Alternatively (the original formula)

```
> evalf( Int( t*m(60+t)*p(t), t=0..70 ));
```

18.52391856

```
> evalf( Int( t^2*m(60+t)*p(t), t=0..70 ));
```

430.4206016

```
> evalf( Int(2*t* p(t), t=0..70 ));
```

$$430.4206018$$

```
> evalf(p(5));
```

$$0.9110453986$$

```
> evalf( Int( t*m(60+t)*p(t), t=0..10 ));
```

$$1.159129472$$

```
> evalf(0.00007585775*10^(0.038*65)/(0.038*ln
  (10)));
```

$$0.2558589844$$

```
> p := t ->
  exp(-0.0005*t-.2558589844*(10^(0.038*t)-1))
  ;
```

$$p := t \to \mathbf{e}^{(-0.0005\,t - 0.2558589844\,(10^{(0.038\,t)} - 1))}$$

```
> evalf( Int( exp(-0.04*t)*p(t), t=0..70 ));
```

$$10.57046885$$

```
> evalf(0.00007585775*10^(0.038*35.5)/(0.038*
  ln(10)));
```

$$0.01936424959$$

```
> p := t ->
  exp(-0.0005*t-.1936424959e-1*(10^(0.038*t)-
  1));
```

$$p := t \to \mathbf{e}^{(-0.0005\,t - 0.01936424959\,(10^{(0.038\,t)} - 1))}$$

```
> evalf( p(29.5));
```

0.7778319857

```
> evalf( Int( exp(-0.04*t)*m(35.5+t)*p(t),
  t=0..29.5 ));
```

0.1065311863

```
> evalf(sum(exp(-0.04*t)*p(t), t=0..29));
```

16.86558193

```
> evalf(Int(exp(-0.04*t)*p(t), t=0..29.5));
```

16.36143956

```
>
```