Integrals needed for friction

```
In[ ]:= Integrate[Exp[-2 k d ], {k, 0, ∞}, Assumptions → {Element[d, Reals], d > 0}]
```

$$\text{Out[ ]=} \quad \frac{1}{2\,d}$$

```
In[ ]:= Integrate[k Exp[-2 k d ], {k, 0, ∞}, Assumptions → {Element[d, Reals], d > 0}]
```

$$\text{Out[ ]=} \quad \frac{1}{4\,d^2}$$

```
In[ ]:= Integrate[k^2 Exp[-2 k d ], {k, 0, ∞}, Assumptions → {Element[d, Reals], d > 0}]
```

$$\text{Out[ ]=} \quad \frac{1}{4\,d^3}$$

Integrals needed for BLDS

```
In[ ]:= Integrate[Exp[-2 k d ], {k, 0, ∞}, Assumptions → {Element[d, Reals], d > 0}]
```

$$\text{Out[ ]=} \quad \frac{1}{2\,d}$$

```
In[1]:= Integrate[(-2 k) Exp[-2 k d ], {k, 0, ∞}, Assumptions → {Element[d, Reals], d > 0}]
```

$$\text{Out[1]=} \quad -\frac{1}{2\,d^2}$$

```
In[2]:= Integrate[(-2 k)^2 Exp[-2 k d ], {k, 0, ∞}, Assumptions → {Element[d, Reals], d > 0}]
```

$$\text{Out[2]=} \quad \frac{1}{d^3}$$