In[6]:=
```
(*For s == 1, h becomes*)
```

In[7]:=
```
Simplify[h[x], {s == 1, x ∈ Reals, x > 0}]
```

Out[7]=
$$2x\left(\begin{cases} \pi + (-4+x)\,x & x \le 1 \\ -2 - x^2 + 4\sqrt{-1+x^2} - 2\,\text{ArcCot}\left[\frac{1}{\sqrt{-1+x^2}}\right] + 2\,\text{ArcTan}\left[\frac{1}{\sqrt{-1+x^2}}\right] & 1 < x < \sqrt{2} \\ 0 & \text{True} \end{cases}\right)$$

In[8]:=
```
(*Expected Value*)
s := 1.
Integrate[x * h[x], {x, 0, Sqrt[2]}]
```

Out[9]=
```
0.521405
```