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1. The first part of the paper is devoted to the study of the

properties of the function $f(x)$ defined by the equation

$$f(x) = \int_0^x \frac{1}{1+t^2} dt$$

It is well known that this function is increasing and concave

downwards. We shall now prove that it is also

$$f(x) = \arctan x$$

for all values of x .

2. The second part of the paper is devoted to the study of the

properties of the function $g(x)$ defined by the equation

$$g(x) = \int_0^x \frac{1}{1+t^4} dt$$

It is well known that this function is increasing and concave

downwards. We shall now prove that it is also

for all values of x .

3. The third part of the paper is devoted to the study of the

properties of the function $h(x)$ defined by the equation

$$h(x) = \int_0^x \frac{1}{1+t^6} dt$$

It is well known that this function is increasing and concave

downwards. We shall now prove that it is also