**امثلة وتمارين**

**Ex: Show that which one of the Following Function is Increasing or Decreasing.**

 **\* إذا كان السؤال يخص التزايد والتناقص للدالة فيكون الحل بفرض قيم للــ *x*1  والــ *x*2 بشرط أن تكون *x*1 ­ < *x*2**

1. **f(*x*) =** $\frac{1}{x^{2}-2}$

 **Let: *x*1 = 3 , *x*4 = 4**

 **f(*x*1) =** $\frac{1}{(3)^{2}-2}$ **=** $\frac{1}{9-2}$ **=** $\frac{1}{7}$

 **f(*x*2) =** $\frac{1}{(4)^{2}-2}$ **=** $\frac{1}{16-2}$ **=** $\frac{1}{14}$

 **3 < 4**

 **f(3) =** $\frac{1}{7}$ **> f(4) =** $\frac{1}{14}$

$∴$ **decreasing**

1. **f(*x*) =** $\sqrt[3]{2x+1}$

 **Let: *x*1 = 3 , *x*2­ ­ = 5**

 **f(*x*) =** $\sqrt[3]{2x+1}$

 **f(*x*1) =** $\sqrt[3]{2(3)+1}$

 **=** $\sqrt[3]{6+1}$

 **=** $\sqrt[3]{7}$ **= 1.9**

 **f(*x*2) =** $\sqrt[3]{2(5)+1}$

 **=** $\sqrt[3]{10+1}$

 **=** $\sqrt[3]{11}$ **= 2.22**

 **3 < 5**

 **f(3) = 1.9 < f(5) = 2.22**

$∴$ **Increasing**

**H.w: Show that which one of the Following Function is Even or Odd or not:**

1. $f\left(x\right)=2x^{2}+3$
2. $f\left(x\right)=2x-5$