Answer on Question #56648 – Math – Algebra

1) According to Descartes' rule of signs, how many possible negative real roots could the following polynomial function have?
   f(x) = 3x^4 – 5x^3 – 5x^2 + 5x + 2

A: Two or Zero
B: Three
C: Four
B: Three or One

Solution

$f(x)=3x^4 - 5x^3 + 5x^2 + 5x + 2$,
so $f(-x)=3x^4 + 5x^3 + 5x^2 - 5x + 2$
There is a sign change from $5x^2$ to $-5x$, as well as from $-5x$ to 2.
There are either **2 or 0 negative real roots for this function**.

Answer: A: Two or Zero;

2) Identify the relative minimum value for the function shown below.
   g(x) = x^3 – 3x^2 + 2

Solution

The relative minimum (or turning point) value of $G(x)=x^3-3x^2+2$ is the point at which the slop of the curve is zero and that the graph is concave up around that point. If you draw the graph (or just take the derivative) you will see that the graph turns twice (at (0,2) and (2,-10)). **This means the relative minimum occurs at x=2 and it is equal to y= -10. Answer:** (2; -10).

3) In a ___ sequence, the ratio between consecutive terms is constant.

Solution

In a **geometric** sequence, the ratio between consecutive terms is constant.