Are you prepared for Calculus 151?

Do the problems as you are doing an exam: don't look what others are doing, don't look at the web and don't use any electronic like cell phones, calculators or tablets.

When you done, you should watch the solution video.

You are also expected to know well inverse trigonometric functions. Please watch the tutorial on inverse trigonometric function.

1. (a) Find $\sqrt{16} =$ (b) Solve the equation $x^2 = 16$.

2. (a) Solve the equation $x = x^2$ (b) Solve the inequality $x^2 > x$.

3. Solve the inequality $(x+2)(2x-1) > (x+2)(x+1)$.

4. Find the domain of (a) $f(x) = \sqrt{(x-3)(x+1)}$ (b) $g(x) = \dfrac{x-3}{x+1}$

5. True or false: the functions $f(x) = \dfrac{x^2+x-2}{x-1}$, $g(x) = x+2$ are the same. Explain.

6. Use the quadratic equation to solve the equation $5x^2 + 6x = 4$.

7. Find the exact simplified value of A such that $\dfrac{\sqrt[3]{x^2}}{\sqrt[4]{x^5}} \cdot x = x^A$

8. Simplify the expression $\dfrac{\frac{1}{x-1} + \frac{3}{x+1}}{\frac{1}{x^2-1} - \frac{1}{x+1}}$

9. Find the integers A and B such that $x^2 + 6x = (x+A)^2 - B$. Hint: complete the square.

10. $f(x) = \dfrac{x^2}{x-1}$, $g(x) = \sqrt{3x^2+5x-1}$. Find, but don't simplify, (a) $f \circ g$ (b) $g \circ f$.

Note: $f \circ g = f(g(x))$ and $g \circ f = g(f(x))$.

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