NAME _____

MATH 101: FALL 2020	TEST 3

You are allowed one page of notes and a calculator. No phones. More than 150pts to earn. $\boxed{\textit{Box}}$ *your answers for full credit and show work. Thanks!*

Problem 1: (10pts) Find domain in interval notation for $f(x) = \dfrac{2x+13}{x-6}$

Problem 2: (10pts) Simplify $\dfrac{16x^{99}}{2x^{11}}$

Problem 3: (10pts) Simplify $\dfrac{\frac{1}{x}-7}{\frac{1}{x}+2}$

Problem 4: (10pts) Simplify $\dfrac{x^2}{5x+20} \cdot \dfrac{7x+28}{x^3}$

Problem 5: (10pts) Simplify $\dfrac{x^2-16}{x^2+3x+2} \cdot \dfrac{x^2-4}{x-4}$

Problem 6: (10pts) Simplify $\dfrac{10x^2 + 20x^5 - 10x^6}{2x^2}$

Problem 7: (10pts) Simplify $\dfrac{8a^2}{16a^5 - 24a^3 + 8a^2}$

Problem 8: (10pts) Simplify $\sqrt[3]{-8x^{15}}$

Problem 9: (10pts) Rewrite the expression as to rationalize the denominator: $\dfrac{46}{7+\sqrt{3}}$

Problem 10: (10pts) Find the Cartesian form of the complex number $\dfrac{20}{1+3i}$

Problem 11: (15pts) Solve $\dfrac{x}{5} - \dfrac{x}{7} = 4$

Problem 12: (15pts) Solve $\dfrac{x+3}{x+1} = \dfrac{5}{3}$.

Problem 13: (15pts) Solve $\sqrt{x+7} - 2 = 5$.

Problem 14: (15pts) Solve $x = 7 + \sqrt{x-5}$.