Math 418 Oct. 15

Quiz 5

1. $f(x) = \dfrac{11x^3 + 4x + 1}{5x^3 + 15}$

H.A. $= x = 11/5$

$11/5$

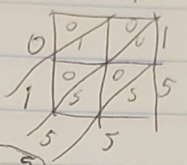
$5x^3+15 \;\overline{)\; 11x^3 + 0x^2 - 4x + 1}$

$-11x^3 + 0x^2 + 0x + 31$

$-4x - 30$

$\frac{15}{1} \cdot \frac{11}{5}$

$5 \;\overline{)\; 155}$ → 31



2. $r(x) = \dfrac{-6(x+4)(x-9)^3(x+7)^2(x-12)^5}{(x-8)^3(x-9)^3(x-12)^3}$

hole; $x = 9$

VA; $x = 8$

root; $x = -4, -7, 12$

3. $r(x) = \dfrac{2+x}{16+x} = (0.65)^{16+x}$

$(2+x)^{20} = \left(\dfrac{208+13x}{20}\right)^{20}$

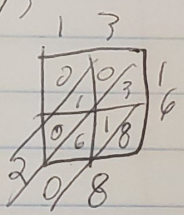
$\frac{13}{20} \cdot \frac{16+x}{1}$

$5 \;\overline{)\; 65}$ → 13

-5

1

$\frac{65}{100} / 5$



$40 + 2x = 208 + 13x$

$-40 \quad -40$

$2x = 162 + 13x$

$-13x \quad -13x$

$\dfrac{-11x}{-11} = \dfrac{162}{-11}$

$208 - 40 = 162$

$11 \;\overline{)\; 162.0}$ → 14.7

11

52

44

80

$\dfrac{2+(15)}{16+(15)} = \dfrac{17}{31}$

$\dfrac{2+25}{16+25} = \dfrac{27}{41}$

$x = 25$ matches