Lista da Semana 3 - Victor Ramos

1a) $3^3 = 27$

b) $(-3)^3 = -27$

c) $(-3)^4 = 81$

d) $-3^4 = -81$

e) $0,12 \cdot 0,12 = 0,0144$

f) $45^0 = 1$

g) $5^{-2} = \left(\frac{1}{5}\right)^2 = \frac{1}{25}$

h) $\left(\frac{12}{3}\right)^{-4} = \left(\frac{3}{12}\right)^4 = \frac{81}{16}$

i) $36^{\frac{1}{2}} = \sqrt{36} = 6$

j) $\sqrt[5]{\sqrt[3]{30}} = \sqrt[5]{5^{\frac{30}{3}}} = 5^{\frac{10}{5}} = 5^2 = 25$

2a) $\frac{3^4 \cdot 3^8}{3^7} = \frac{3^{12}}{3^7} = 3^5 = 243$

b) $7^3 \cdot \frac{4^3}{2^3} = 343 \cdot 8 = 2744$

c) $2^3 \cdot \frac{9^3}{18^2} = \frac{8 \cdot 729}{324} = 18$

d) $(5^4)^2 = 5^8 = 390.625$

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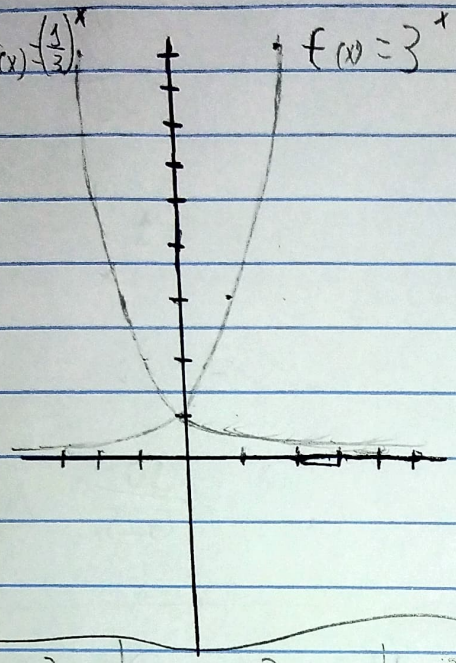
e) $5^{4^2} = 5^{16} =$

1 1

3) $E = \dfrac{5^{4n+3} - (5 \cdot \sqrt[3]{5})^{3n}}{5^{4n}}$

4)



5) $f(2) = k \cdot a^2$ | $k = \frac{3}{2}$ | $\frac{3}{2} \cdot a^{-3} = 12$ | $\frac{3}{2a^3} = 12$ | $a^3 = \frac{3}{24}$ | $a = \frac{1}{2}$

$f(0) = \frac{3}{2} \cdot 1$ | $K \cdot a^{-3} = 12$ | $\frac{3}{2} \cdot \frac{1}{a^3} = 12$ | $3 = 24a^3$ | $a^3 = \frac{1}{8}$

6a) $\log_3 27$ | $3^x = 27$ | $x = 3$

b) $\log_{10} 1000$ | $10^x = 3$

c) $\log_2 \frac{1}{8}$

$2^x = \frac{1}{8}$

$x = -3$

d) $\log_7 7 = 1$

e) $\log_4 1 = 0$

f) $\log_{16} 4 = \frac{1}{2}$

g) $\log_{27} 9 = x$

$27^x = 9$

$x = \frac{2}{3}$

0,85 · 0,85 = 425 + 6801 = 7225

0,30 | 285

200 | 85
450 | 935
25

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a) $\log_{10} 14 = 1,54$

b) $\log(35)$

$\log \frac{35}{10}$

$\log 35 - \log 10$

$\log 35 - 1$

$1,54 - 1$

0,54

c) $\log \sqrt[3]{4} =$

$\log 2^{\frac{2}{3}}$

$\frac{2}{3} \cdot \log 2$

$\frac{2}{3} \cdot 0,3$

0,2

d) $\log 0,49$

$\log \frac{49}{100}$

$\log \left(\frac{7}{10}\right)^2$

$2 \cdot \log_{10} \left(\frac{7}{10}\right)$

$2 \cdot (\log_{10} 7 - \log_{10} 10)$

$2 \cdot (\log_{10} 7) - 2$

$2 \cdot (0,85) - 2$

$1,7 - 2$

0,30

e) $\log_2 2 = \frac{\log 2}{\log 2}$

$\frac{0,30}{0,85}$

$\approx 0,35$

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8a) $\log_{12} 36 + \log_{12} 4 = \log_{12} 144$

$12^x = 144$

$12^x = 12^2$

$x = 2$

b) $\log_5 35 - \log_5 7 = \log_5 5$

$5^x = 5^1$

$x = 1$

c) $\frac{1}{3} \cdot \log_3 64 + \log_3 18 - \log_3 8$

$\log_3 \sqrt[3]{64} + \log_3 18 - \log_3 8$

$\log_3 4 + \log_3 18 - \log_3 8$

$\log_3 72 - \log_3 8$

$\log_3 9$

$3^x = 3^2$

$x = 2$

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(9) (d)

(10) $f(x) = 5 + \log_{2x-4}(15-3x)$

$2x-4>0$ $\quad 2x-4 \neq 1$ $\quad 15-3x>0$

$2x>4$ $\quad 2x \neq 5$ $\quad -3x>-15$

$x>2$ $\quad x \neq \frac{5}{2}$ $\quad 3x<15$

$x<5$

$D_f =]2, \frac{5}{2}[\cup]\frac{5}{2}, 5[$