Warm-Up:

① $5^{x+3} = 48$ $x = -0.595$

$\log 5^{x+3} = \log 48$

$(x+3)\log 5 = \log 48$

$\frac{(x+3)\log 5}{\log 5} = \frac{\log 48}{\log 5}$

$x+3 = \frac{\log 48}{\log 5}$

$x = \frac{\log 48}{\log 5} - 3$

$x = -0.595$

② $7^{x+2} = 12^{2x-3}$ $x = 3.752$

$(x+2)\log 7 = (2x-3)\log 12$

$x\log 7 + 2\log 7 = 2x\log 12 - 3\log 12$

$x\log 7 - 2x\log 12 = -3\log 12 - 2\log 7$

$x(\log 7 - 2\log 12) = -3\log 12 - 2\log 7$

$\frac{x(\log 7 - 2\log 12)}{\log 7 - 2\log 12} = \frac{-3\log 12 - 2\log 7}{\log 7 - 2\log 12}$

$x = 3.752$

Example: $6^{2x-3} = 8^{x+1}$

Example: $\log\left(\frac{2^{4x}}{5^{2x+5}}\right) = \log 6^{x-1}$

$\log 2^{4x} - \log 5^{2x+5} = \log 6^{x-1}$

$4x\log 2 - (2x+5)\log 5 = (x-1)\log 6$

$(4\log 2 - 2\log 5 - \log 6)x = -\log 6 + 5\log 5$

$x = \frac{-\log 6 + 5\log 5}{4\log 2 - 2\log 5 - \log 6}$

$x = -2.975$

Pg. 400

#4/ a) $1.44 \times 1.2 = x$

$\log(1.44 \times 1.2) = \log x$

$\log 1.44 + \log 1.2 = \log x$

$0.15936 + 0.07918 = \log x$

$0.23754 = \log x$

$x = 1.728$

Warm-up...

Solve the following... $\log\left(\frac{3^x \bullet 2^{x+1}}{4^{3x}}\right) = \log\left(5^{2x}\right)$

$x = 0.124$

$x\log 3 + (x+1)\log 2 - 3x\log 4 = 2x\log 5$

$(\log 3 + \log 2 - 3\log 4 - 2\log 5)x = -\log 2$

$x = \frac{-\log 2}{\log 3 + \log 2 - 3\log 4 - 2\log 5}$

$x = 0.124$

Solve the following... $\frac{2\log_5 2 + \log_5 (x+8)}{\log_5 x} = 2$ $(\log_5 x)$ $x = 8$

$\log_5 4 + \log_5 (x+8) = \log_5 x^2$

$\log_5 [4(x+8)] = \log_5 x^2$

Argument = Argument

$\therefore 4x + 32 = x^2$

$x^2 - 4x - 32 = 0$

$(x-8)(x+4) = 0$

$x = 8, -4$ extraneous

HOMEWORK...

Pgs. 413 # 4,5,6,78

EXTRA ! EXTRA! Optional

Solve: $\dfrac{2^{x} \bullet 5^{3x-1}}{4^{2x+1}} = \dfrac{5\left(7^{5x}\right)}{3^{2x+3}}$