

BE - Precalc | Wednesday 12-2-09

① Solve $5^{2x} = 7^{x+1}$

using log Common Logarithms

$$2x \log 5 = (x+1) \log 7$$

$$2x(.6909) = (x+1)(.8451)$$

$$1.3979x = .8451x + .8451$$

$$-.8451x \quad -.8451x$$

$$.5528x = .8451$$

$$x = \frac{.8451}{.5528} = \boxed{1.5288 = x}$$

using ln NATURAL LOGARITHMS

$$2x \ln 5 = (x+1) \ln 7$$

$$2x(1.6094) = (x+1)(1.9459)$$

$$3.2188x = 1.9459x + 1.9459$$

$$-1.9459x \quad -1.9459x$$

$$1.2729x = 1.9459$$

$$x = \frac{1.9459}{1.2729} = \boxed{1.5287 = x} \quad \checkmark$$

Homework review: Pg. 735 # 5, 7, 9, 15

$$\textcircled{5} \ln .0089 = \boxed{-4.7217}$$

$$\textcircled{7} \ln 21 = \boxed{-1.5606}$$

$$\textcircled{9} \log_5 132 = \frac{\ln 132}{\ln 5} = \frac{4.8828}{1.6094} = \boxed{3.0339}$$

$$\textcircled{15} 6^{x+2} = 14^{x-3}$$

$$(x+2) \ln 6 = (x-3) \ln 14$$

$$\overbrace{(x+2)}^{1.7918} = \overbrace{(x-3)}^{2.6391}$$

$$\begin{array}{r} 1.7918x + 3.5836 = 2.6391x - 7.9173 \\ -1.7918x + 7.9173 \quad -1.7918x + 7.9173 \end{array}$$

$$\begin{array}{r} 11.5009 = .8472x \\ \hline .8472 \quad .8472 \end{array}$$

$$\boxed{13.5752 = x}$$

PRACTICE 2

Pg. 750 # 11, 14, 15-18

22, 23

27

30, 33, 34, 37, 38

44, 45

52

66
