Section 3.1 Algebra Review Work Sheet

Solve the following equations:

1. $x^{15} = 1325$

$$\left(x^{15}\right)^{\frac{1}{15}} = (1325)^{\frac{1}{15}}$$

$$x = 1.614907774$$

2. $(1+y)^{36} = 1.31$

$$\left[(1+y)^{36}\right]^{\frac{1}{36}} = (1.31)^{\frac{1}{36}}$$

$$1+y = (1.31)^{\frac{1}{36}}$$

$$-1 \quad -1$$

$$y = (1.31)^{\frac{1}{36}} - 1$$

$$y = 0.007528954$$

3. $(1.025)^x = 3$

$$\ln(1.025)^x = \ln 3$$

$$x\ln(1.025) = \ln 3$$

$$\frac{x\ln(1.025)}{\ln(1.025)} = \frac{\ln 3}{\ln(1.025)}$$

$$\Rightarrow x = \frac{1.098612289}{0.024692612 6}$$

$$x = 44.49153708$$

4. $4^x + 64 = 4250$

$4^x = 4186$

$\log 4^x = \log 4186$

$x \log 4 = \log 4186$

$x = \dfrac{\log 4186}{\log 4}$

$x = \dfrac{3.621799224}{0.602059913}$

5. $54.73 = \dfrac{1-(1.004)^{-12x}}{0.004}$

$(54.73)(0.004) = 1 - (1.004)^{-12x}$

$0.21892 = x - (1.004)^{-12x}$

$-1 \qquad -x$

$+0.78108 = +(1.004)^{-12x}$

$\ln(0.78108) = \ln(1.004)^{-12x}$

$\ln(0.78108) = -12x \ln(1.004)$

$\Rightarrow x = \dfrac{\ln(0.78108)}{(-12)\ln(1.004)}$

$x = \dfrac{+0.247077016}{(-12)\ln(1.004)} \Rightarrow x = 5.168529466$

0.003992021

0.047904252