Adv. Algebra 2 – Concept Quiz

Name: Key

Form B

Date: _____ Period: _____

29. Properties of Logarithms

a) $log\left(\frac{5x^4}{y \cdot z}\right)$

$\log 5 + 4\log x - (\log y + \log z)$

b) $\frac{1}{3}log(x) + 4log(y) - 2log(z)$

$\log \frac{\sqrt[3]{x}\, y^4}{z^2}$

30. Solving Logarithmic Equations

Find the exact value of x.

$$\log_2(x-2) + \log_2 x = 3$$

$\log_2((x-2)\cdot x) = 3$

$2^3 = x^2 - 2x$

$0 = x^2 - 2x - 8$

$0 = (x-4)(x+2)$

$x = 4, \cancel{-2}$

31. Arithmetic and Geometric Sequences

For each sequence, write the rule and then find a_{11}.

a) 81, -27, 9, ...

Rule $a_n = 81\left(-\frac{1}{3}\right)^{n-1}$

$a_{11} = 81\left(-\frac{1}{3}\right)^{11-1}$

$a_{11} = \frac{1}{729} \approx 0.0014$

b) -31, -24, -17, ...

Rule: $a_n = -31 + 7(n-1)$

$a_{11} = -31 + 7(11-1)$

$a_{11} = 39$

Adv. Algebra 2 – Concept Quiz

Name: *key

Form A

Date: _____ Period: _____

29. Properties of Logarithms

a) $log\left(\frac{3x^2}{y \cdot z}\right)$

$\log 3 + 2\log x - (\log y + \log z)$

b) $\frac{1}{2}log(x) + 3log(y) - 5log(z)$

$\log \frac{\sqrt{x} \cdot y^3}{z^5}$

30. Solving Logarithmic Equations

Find the exact value of x.

$\log_2(x-2) + \log_2 x = 3$

$\log_2((x-2) \cdot x) = 3$

$2^3 = x^2 - 2x$

$0 = x^2 - 2x - 8$

$0 = (x-4)(x+2)$

$x = 4, -2$

31. Arithmetic and Geometric Sequences

For each sequence, write the rule and then find a_{11}.

a) -14, -10, -6, …

Rule: $a_n = -14 + 4(n-1)$

$a_{11} = -14 + 4(11-1)$

$a_{11} = 26$

b) -64, 16, -4, ….

Rule: $-64\left(-\frac{1}{4}\right)^{n-1}$

$a_{11} = -64\left(-\frac{1}{4}\right)^{11-1}$

$a_{11} = -\frac{1}{16384} \approx -0.000061$