Answer Key for Log and Exponents Practice Test

- 1. f(x) must be greater than -6 because y = -6 is the horizontal asymptote.
- 2. C
- 3. Growth: As $x \infty$, $f(x) \to 0$ and as $x \to +\infty$, $f(x) \to +\infty$ Example: $f(x) = 2^x$ Decay: As $x - \infty$, $f(x) \to +\infty$ and as $x \to +\infty$, $f(x) \to 0$ Example: $f(x) = \frac{1^x}{2}$
- 4. Part A: Divide 4000 by 1500 $2.67 = 2^{\frac{t}{24}}$ Convert exponential form to logarithmic form

Part B: t=34 years

- 5. t=25.5 years
- 6. D
- 7. D
- 8. x = 5
- 9. x = 10
- 10. x = -1
- 11. H.A. y = -2, Starting Point: (0,-3), Translation: 1left, 2 down, New Point: (-1, -5) End Behavior: As $x - \infty$, $f(x) \rightarrow -2$ and as $x \rightarrow +\infty$, $f(x) \rightarrow -\infty$
- 12. V.A. x = 2, Starting Point: (1,0), Translation: 2 right, 3 up, New Point: (3, 3) End Behavior: As $x \to 2$, $f(x) \to -\infty$ and as $x \to +\infty$, $f(x) \to +\infty$
- 13. B 14. A 15. *x* = -2 16. -7 17. D