H. Exponential growth graphs approach the asymptote as x approaches negative infinity.
Exponential decay graphs approach the asymptote as x approaches positive infinity.

I. Describe the transformations associated with a, c and d in $y = a(b)^{x-c} + d$

a > 0 : same, steepness	a < 0: reflects on x axis, steepness
c > 0: shifts rt/lt	c < 0: shifts left
d > 0: shifts up	d < 0: shifts down

J. Write an exponential function whose graph passes through the points (0, 8) and (3, 1).

$y = ab^x$ $8 = ab^0 \Rightarrow 8 = a \cdot 1$ so $a = 8$

$1 = 8b^3$ $b^3 = \frac{1}{8}$ $b = \frac{1}{2}$ $y = 8(\frac{1}{2})^x$

Does this function represent growth or decay?

decay

K. Given the equation $y = a(1 + r)^t$, 'a' stands for initial amount

'r' stands for rate (convert percent → decimal)

't' stands for time

(1 + r) is referred to as the growth rate

Given the equation $y = a(1 - r)^t$, (1 - r) is referred to as the depreciation / rate of decay

L. What is the equation for *compound* interest? $y = a(1 + \frac{r}{n})^{nt}$ (finite compounding) or $y = Ae^{kt}$ (continuous)

M. You are choosing a new account for your savings. Your bank offers an account with 3% simple interest, 2 ¾ % interest compounded quarterly, or 2 ½ % interest compounded monthly. If you plan to invest $2000 for 10 years, which is the best deal? (Show total amounts for each)

(A) $2000(1+.03)^{10}$ (B) $2000(1+\frac{.0275}{4})^{40}$ (C) $2000(1+\frac{.025}{12})^{120}$

$2687.83 $2630.58 $2567.38

Choose the simple interest

N. Write the Property of Equality for Exponential Functions: If b is a positive number other than 1, then $b^x = b^y$ iff $x = y$.

P. Solve: $4^{\sqrt{x}} = 16^{\sqrt{5}}$

$4^{\sqrt{x}} = (4^2)^{\sqrt{5}}$

$\sqrt{x} = 2\sqrt{5} \Rightarrow x = 20$

$3^{2x-1} = \frac{1}{9}$

$3^{2x-1} = 3^{-2}$

$2x - 1 = -2$

$2x = -1$ $x = -1/2$

$27^x = 3^{2x+3}$

$(3^3)^x = 3^{2x+3}$ $x = 3$

$3x = 2x + 3$

$7^{3x} = 49^{x^2}$

$7^{3x} = (7^2)^{x^2}$

$3x = 2x^2$

$2x^2 - 3x = 0$

$x(2x - 3) = 0$

$x = 0$ $x = 3/2$