

Name: _____

PreCalculus Unit 4: 4.1 Homework Exponential Functions

For problems 1-5, identify the domain, range, asymptotes, and intercepts. Sketch the graph.

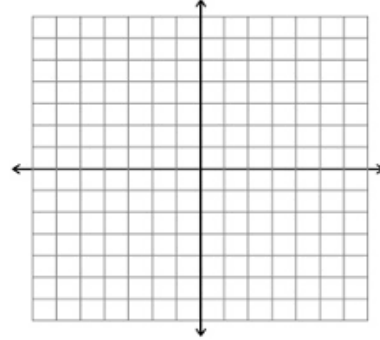
1. $f(x) = (1/8)^{(x-1)} - 4$

Domain:

Range:

Asymptote:

Intercepts:



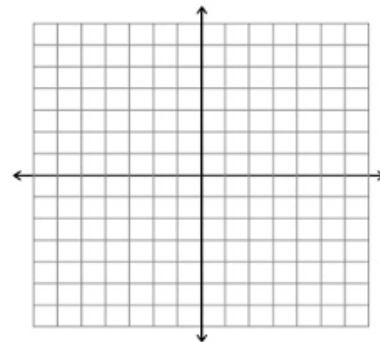
2. $f(x) = 2^{x-2}$

Domain:

Range:

Asymptote:

Intercepts:



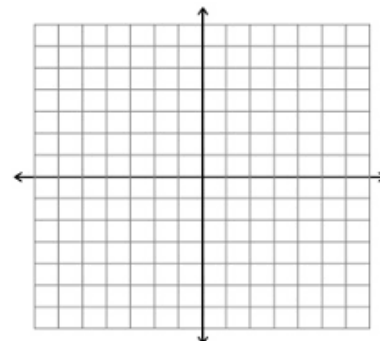
3. $f(x) = -4^{x+1}$

Domain:

Range:

Asymptote:

Intercepts:



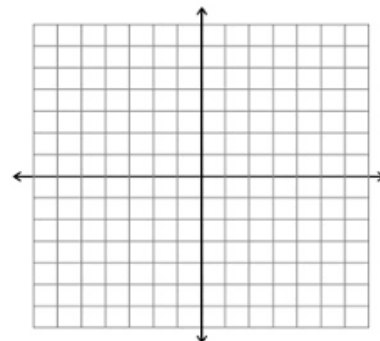
4. $f(x) = (1/3)^{(-x+1)} - 1$

Domain:

Range:

Asymptote:

Intercepts:



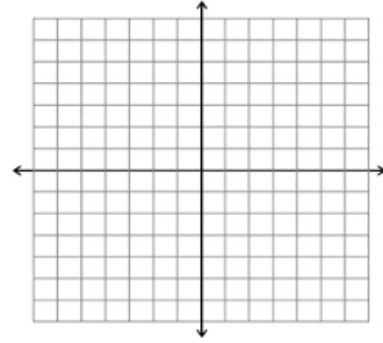
5. $-e^{0.4x} + 3$

Domain:

Range:

Asymptote:

Intercepts:



6. Mr. Dooley wants to invest \$5,000 into Pizza Hut, and he is given three different options. Option 1 is compounded annually with a 6% interest rate. Option 2 is compounded quarterly with a 5.9% interest rate. Option 3 is compounded continuously with a 5.9% interest rate. Which investment is going to yield him the highest return after 10 years?

7. After t years, the value of a car that costs \$20,000 is modeled by $V(t) = 20,000(3/4)^t$. Determine the value of the car after 5 years, 10 years, and 20 years. What happens to the value of the car over time?

8. The population of a town increases according to the model $P(t) = 2500e^{0.0293t}$, where t is the time in years, with $t = 0$ corresponding to the year 2019. Determine what the population will be in the years 2029 and 2044.