Exponential Functions

In problems 1-2, Use the properties of exponents to simplify the expression

1.	2.
$a)\left(2^3\right)\cdot\left(2^2\right)$ $b)\left(2^{-4}\right)\left(2^2\right)$ $c)\left(2^2\right)^3$ $d)2^{-3}$	$a)\frac{2^2}{8^3}$ $b)\left(4^{1/5}\right)(2)\left(2^{3/5}\right)$ $c)\left[\left(8^{1/3}\right)\left(2^3\right)\right]^{3/4}$ $d)\left(16^2\right)\left(2^{-5}\right)$

In problems 3-8, graph the function

3. $f(x)=3^x$	4. $f(x)=\left(\frac{1}{2}\right)^x$
5. $f(x)=4^{x-2}$	6. $f(x)=-5^{x^2-x+1}$
7. $f(x)=2(5)^{-x-2}$	8. $f(x)=3^{x+2}-4$

9. Given a population model: $P(t)=300(1.03)^t$ where P is the population in millions and t is the time in years (t = 0 indicates year 2000). Estimate the population in 2020 based on this model.

10. Given the approximate cost: $C(t)=P(1.09)^t$ where C is the cost, P is the present cost, and t is the time in years (t = 0 indicates year 2000). Given the present cost of a service is $30, estimate the cost in the year 2010.