Exponential Functions

1. Use the properties of exponents to simplify the expression
(Similar to p.256 #1-4)

$(a)\ \left(2^2\right)\left(2^3\right)$

$(b)\ \left(2^2\right)\left(2^{-4}\right)$

$(c)\ \left(2^2\right)^3$

$(d)\ 2^{-4}$

2. Use the properties of exponents to simplify the expression
(Similar to p.256 #1-4)

$(a)\ \dfrac{2^2}{2^5}$

$(b)\ \left(\dfrac{1}{2}\right)^{-3}$

$(c)\ \left(18^{1/2}\right)\left(2^{1/2}\right)$

$(d)\ \left(81^{2/3}\right)\left(\dfrac{1}{3}\right)^{2/3}$

3. Use the properties of exponents to simplify the expression
(Similar to p.256 #1-4)

$(a)\ \dfrac{3^{12}}{9^8}$

$(b)\ \left(4^{4/5}\right)(2)\left(2^{2/5}\right)$

$(c)\ \left[\left(16^{1/2}\right)\left(4^3\right)\right]^{1/2}$

$(d)\ \left(9^2\right)(27)$

4. Sketch the graph of the function
(Similar to p.256 #7-18)

$$f(x) = 3^x$$

5. Sketch the graph of the function
(Similar to p.256 #7-18)

$$f(x) = 2^{x-3} + 1$$

6. Sketch the graph of the function
(Similar to p.256 #7-18)

$$f(x) = 3^{-1/2x^3}$$

7. The sales S (in millions) is given by this model:
$S(t) = 30(1.143)^t$
where t is the time in years since year 2010
(a) Use the model to estimate sales in 2015
(b) Use the model to estimate sales in 2025
(Similar to p.257 #20)