Natural Exponential Functions

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

1.	2.
$a) e^5 \cdot e^3$ $b) \frac{e^2}{e^{12}}$ $c) \left(\frac{1}{e^3}\right)^{-4}$ $d) \left(e^{-2}\right)^{-6}$	$a) e^3 \cdot e^{1/2}$ $b) \frac{e^{1/3}}{e^{1/5}}$ $c) \left(e^{2/5}\right)^{10/3}$ $d) e^{1/4} \cdot e^5$

In problems 3-11, graph the function

3. $f(x) = e^{3x-1}$	4. $f(x) = e^{-x^2}$
5. $f(x) = e^{1/2x^2}$	6. $f(x) = -e^{3x}$
7. $f(x) = e^x + 2$	8. $f(x) = e^{-2x-1} - 1$
9. $f(x) = 300e^{-0.3x}$	10. $f(x) = \frac{3}{1-e^x}$
11. $f(x) = \frac{3}{1+e^{x^2}}$	

In problems 12-13 complete the table to determine A for the given principal, rate, and time. n is the number of times compounded per year

n	1	2	4	12	365	Continuous Compounding
A						

12. P = $2500, r = 5%, t = 20 years

13. P = $5000, r = 4%, t = 10 years

In problems 14-15 complete the table to determine P for the given values with a final balance of $200,000.

t	1	10	25	50	100	500
P						

14. r = 3%, compounded continuously

15. r = 4%, compounded quarterly

16. Find the effective rate of interest given a nominal rate of 8.5% per year compounded a) annually, b) semi-annually, c) quarterly, and d) monthly

17. How much should be invested in an investment account paying 6.8% interest compounded quarterly in order to have a balance of $10000 after 5 years?