(a) $A(t) = 24(1.1)^t$

(b) $A(1776-1626) = 24(1.1)^{1776-1626} \approx \$38,825,228.06$

(c) $A(2005-1626) = 24(1.1)^{2005-1626} \\ \approx 1.17 \times 10^{17}$ dollars.

(d) Based on this calculation, Mr. Minuit would have been much better off putting the money in the stock market than buying Manhattan for $24, since his worth would then be thousands of hundreds of thousands of times the total amount of all goods produced in the United States in a year.

(e) The reasoning is inappropriate over this long time period. Not only did the stock market not exist in 1626, but when it did, the rate of return was not a constant 10%. Finally, since so much wealth is physically impossible (according to our current understanding), it would probably not have been possible for Mr. Minuit's stocks to return him a real rate of growth of 10%.
2. I list in order of increasing rate of growth:
   1, 6, 4, 5, 4, 3, 2, 4

3. \( 2^4 = 10^t \iff 24 \ln(2) = t \ln(10) \)
   \[ t = \frac{24 \ln(2)}{\ln(10)} \approx 7.22 \]

4. \( \lim_{x \to \infty} \frac{x^2 - 1}{x^2 + 1} = 1 \), \( \lim_{x \to 1} \frac{x^2 - 1}{x^2 + 1} = \frac{0}{2} = 0 \)

5. \( \lim_{x \to \infty} \sin(x) \) does not exist

6. \( \lim_{x \to \pi/2} \tan(x) \) does not exist

7. \( \lim_{x \to -\infty} \ln(x) = 0 \;

8. \( \lim_{x \to \infty} \frac{x}{\ln(x)} = \infty \) (that is, \( \frac{x}{\ln(x)} \) increases without bound as \( x \to \infty \).)