1. (a) Abs Max is 3 at $x = 0$ and $x = 2$. Abs Min is -1 at $x = \sqrt{2}$.
   (b) Abs Max is 3 at $x = 0$. Abs Min is 0 at $x = 1$ and $x = -1$.

2. (a) all x except for $x = 1$ and $x = -1$.
   (b) horizontal asymptote at $y = 2$; vertical asymptotes at $x = 1$ and $x = -1$.
   (c) increasing for $x < 0$, $x \neq -1$ and decreasing for $x > 0$, $x \neq 1$.
   (d) concave up for $x < -1$ and $x > 1$; concave down for $-1 < x < 1$.

3. sorry, we didn't include the graph!

4. these limits are using L'Hopital's rule which we will not be testing you on this exam. If you are interested, ask your professor how to calculate these limits.

5. if w is width, we find that $w = 12^{(1/3)}$, so the length is $2w = 2 \times 12^{(1/3)}$ and the height is $8/w^2 = 8/(12^{(2/3)})$.

6. (a) $v(t) = -32t + 8$
   (b) $s(t) = -16t^2 + 8t + 80$
   (c) at $t = 1/4$ seconds.
   (d) at $t = 2$ seconds.

7. $f(x) = 3e^x - 4\cos(x) + (2/5)x^{(5/2)} + C$