- Test 2 opens TODAY at 3pm
- Assignment #5 due on December 20

- TODAY: More indeterminate forms

- MONDAY: Concavity   **(Videos 6.13, 6.14)**

Indeterminate?

Which of the following are indeterminate forms for limits? If any of them isn't, then what is the value of such limit?

1. $\dfrac{0}{0}$

2. $\dfrac{0}{\infty}$

3. $\dfrac{0}{1}$

4. $\dfrac{\infty}{0}$

5. $\dfrac{\infty}{\infty}$

6. $\dfrac{1}{\infty}$

7. $0 \cdot \infty$

8. $\infty \cdot \infty$

9. $\sqrt{\infty}$

10. $\infty - \infty$

11. 1^{∞}

12. $1^{-\infty}$

13. 0^0

14. 0^{∞}

15. $0^{-\infty}$

16. ∞^0

17. ∞^{∞}

18. $\infty^{-\infty}$

Leftover limits

1. $\displaystyle\lim_{x\to 0} x\sin\frac{2}{x}$

2. $\displaystyle\lim_{x\to\infty} x\sin\frac{2}{x}$

3. $\displaystyle\lim_{x\to\infty} x\cos\frac{2}{x}$

Challenge:

4. $\displaystyle\lim_{x\to 0}\left(\frac{\sin x}{x}\right)^{1/x^2}$

More computations

1. $\displaystyle\lim_{x \to a} \frac{\sqrt{2a^3x - x^4} - a\sqrt[3]{a^2x}}{a - \sqrt[4]{ax^3}}$, where $a > 0$

2. $\displaystyle\lim_{x \to 1} \left[(\ln x) \tan \frac{\pi x}{2} \right]$

3. $\displaystyle\lim_{x \to \infty} [\ln(x + 2) - \ln(3x + 4)]$

4. $\displaystyle\lim_{x \to \infty} \left(\frac{x + 2}{x - 2} \right)^{3x}$

5. $\displaystyle\lim_{x \to 0^+} x^x$