

These skill practice questions are due on **Thursday, Oct 13, 2016**. They will help you do Problem Set 3. Both are to be submitted individually (but you are encouraged to discuss your solution with your classmates, and you can ask me and the Calculus tutors for help). Write your final draft on this sheet (use scratch paper to do your scratch work).

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0.1 Fully expand the following powers. Simplify the expansion by combining like terms.

Note that you can use your answer for each part to help with the next part. You don't have to do each one from scratch!

a.  $(x + \Delta x)^2$

b.  $(x + \Delta x)^3$

c.  $(x + \Delta x)^4$

d.  $(x + \Delta x)^5$

0.2 Simplify by factoring and cancelling a common factor.

a.  $\frac{4\Delta t^3 + 3\Delta t^2 + 2\Delta t}{5\Delta t}$

b.  $\frac{2\Delta x^3 + 6x^2\Delta x - 2\Delta x}{2\Delta x}$

c.  $\frac{x^4 - 3x^2 - 54}{(x + 3)(x + 1)}$

0.3 Multiply, then simplify the product by combining like terms in the numerator, factoring, and cancelling.

a.  $\frac{\sqrt{x+1} - 1}{x} \cdot \frac{\sqrt{x+1} + 1}{\sqrt{x+1} + 1}$

b.  $\frac{\sqrt{6+2\Delta x} - \sqrt{6}}{\Delta x} \cdot \frac{\sqrt{6+2\Delta x} + \sqrt{6}}{\sqrt{6+2\Delta x} + \sqrt{6}}$

c.  $\frac{\sqrt{8+b} - \sqrt{8+a}}{(b-a)} \cdot \frac{\sqrt{8+b} + \sqrt{8+a}}{\sqrt{8+b} + \sqrt{8+a}}$