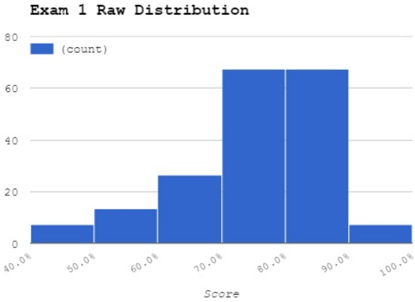
Mon 22 Feb

- Exam 1 Feedback

		Problem														
	Total	1	2	3 (a)	(b)	(c)	(d)	4	5 (a)	(b)	(c)	6 (a)	(b)	(c)	7	8
out of	75	10	10	3	3	3	3	10	3	3	3	5	5	3	5	5
Median ->	48.0	8	7	2	0	1	2	8	2	3	1	5	1	1	4	3



Mon 22 Feb (cont.)

- MIDTERM
  - Tuesday 8 March 6-7:30p
  - If you have legitimate conflict, i.e., anything that is also scheduled in ISIS, I need to know now. If you are not sure if it conflicts with a course, please have that instructor contact me ASAP.
  - Cumulative. Covers up to §3.9
  - Morning Section: Walker rm 124
    Afternoon Section: Walker rm 218
- Sub on Friday 26 Feb and Monday 29 Feb.
- Exam 2: Friday 4 March. Covers up to §3.8.

The Quotient Rule also allows us to extend the Power Rule to negative numbers – if n is any integer, then

$$\frac{d}{dx}\left[x^n\right] = nx^{n-1}.$$

Question

How?

Exercise

If $f(x) = \dfrac{x(3-x)}{2x^2}$, find $f'(x)$.

Derivative of e^{kx}

For any real number k,

$$\frac{d}{dx}\left(e^{kx}\right) = ke^{kx}.$$

Exercise

What is the derivative of $x^2 e^{3x}$?

The derivative provides information about the instantaneous rate of change of the function being differentiated (compare to the limit of the slopes of the secant lines from §2.1).

For example, suppose that the population of a culture can be modeled by the function $p(t)$. We can find the instantaneous growth rate of the population at any time $t \geq 0$ by computing $p'(t)$ as well as the **steady-state population** (also called the **carrying capacity** of the population). The steady-state population equals

$$\lim_{t \to \infty} p(t).$$

3.4 Book Problems

9-49 (every 3rd problem), 57, 59, 63, 75-79 (odds)