SECTION 4.5: INCREASING/DECREASING, CONCAVITY instructor notes

There are two Section 4.5 Worksheets.

Day 1: This goes over how to use f' to determine when a graph is increasing or decreasing and f'' for concave up and concave down.

This is built as a back and forth.
Parts 1,2 and 3 the teacher goes over, followed by having students do 4 individually/groups.

Parts 5,6,7 the teacher goes over followed by students doing 8 individually/groups.

If there is more time you can

(i) start to foreshadow Day 2 and the second derivative test for extrema OR

(ii) give students another problem to work independently, say $y = x - 3x^{2/3}$. Have students find incr/decr/ccup/ccdown.

OR
(iii) Help students relate 4.5 to 4.3. In 4.3 we don't have a way of systematically determining local extrema.

Day 2: Will want to begin by reviewing topics from 4.5 Day 1.

Teacher goes over parts 1 and 2. Students do part 3. When done with #3 talk with students about the value and limitations of the second derivative test for extrema (eg. if all you want to know is what happens at $x = 2$, f'' makes it easy, but it's useless for $x = 0$.

Problems 4 and 5 are in groups.