Exam will last for exactly 1 hour. (The other 40 minutes will be devoted to the new material as scheduled.) Each question is worth 16 points unless stated otherwise:

1. Simplify, leave answer without fractional or negative exponents

$$\left( \frac{4x^{1/2}y^{-2/3}}{x^2} \right)^{-1}$$

2. Simplify, leave answer without radicals in denominator

$$\frac{\sqrt{6}+3\sqrt{5}}{3\sqrt{6}-\sqrt{5}}$$

3. Simplify (use method I)

$$\frac{\dfrac{5}{2}-\dfrac{5}{x}}{1-\dfrac{4}{x^2}}$$

4. Simplify (use method II)

$$\frac{\dfrac{2}{y^2+y}+\dfrac{1}{2y}}{\dfrac{4}{2y^2+2y}-\dfrac{1}{y+1}}$$

5. First simplify each radical, second perform the indicated operation and third simplify:

$$(-2\sqrt{3}+6\sqrt{50})(-\sqrt{8})$$

6. (20 points) Solve: $x-\sqrt{7-3x}=1$

Extra (10 points) A problem similar to one of the following:

   i.    Sam can shovel snow in a driveway in 3 hours. Her younger sister Jude helps her one day & they complete the task in 2 hours. Working alone, how long would it take Jude?

   ii.    Bicyclist Ric rides 30 mi against a wind & returns 30 mi with the wind. His speed for the return trip was 5 mph faster. How fast did Ric ride against the wind if the ride was 5 hr in total?

   iii.    A professional mover is bringing a load into an apartment building that is 5 ft above the ground level. Her metal ramp is 20 ft long, find the horizontal distance from the loading dock to the end of the ramp exactly & to nearest in.