

Prob.	1	2	3	4	5	6	7	8	Total
Value	5	16	17	7	8	9	16	22	100
Points									

"I'm a great believer in luck, and I find the harder I work, the more I have of it." — Thomas Jefferson

Recall, it is your job to demonstrate the extent to which you understand each problem, this means *write mathematics*. A good write-up includes: connecting your work, proper notation, and an explanation of steps as you see necessary.

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1. Rewrite the expression with rational exponents.

$$\left(\sqrt{2xy}\right)^5$$

2. Perform the indicated operations, and simplify completely.

(a)  $(-27)^{-\frac{2}{3}}$

(b)  $\frac{\left(2y^{\frac{1}{3}}\right)^2}{y^{\frac{3}{4}}}$

(c)  $x^{\frac{1}{3}}\left(x^{\frac{2}{3}} - x^{\frac{1}{3}}\right)$

3. Perform the indicated operations, and simplify completely, assume all variables are positive. You may have to simplify terms to identify the like radicals.

(a)  $\sqrt{12x}\sqrt{3x}$

(b)  $7\sqrt{12} - \sqrt{75} - 4\sqrt{5} + 2\sqrt{45}$

(c)  $\frac{\sqrt{54x^3}}{\sqrt{6x}}$

4. Use rational exponents to completely simplify.

$$\sqrt{4x} \sqrt[5]{x^3}$$

5. Perform the indicated operations, and simplify **completely**.

$$(2 - 5\sqrt{3})(2 + 5\sqrt{3})$$

6. Rationalize the numerator, and simplify **completely**.

$$\frac{\sqrt{x+5} - \sqrt{x}}{5}$$

7. Solve the radical equation, clearly indicate your solution.

$$3x - \sqrt{3x + 7} = -5$$

8. Solve each equation, clearly indicate your solution(s). Clean up/simplify your answer.

(a)  $(2x - 5)(x + 1) = 2$

(b)  $\frac{x^2}{3} + \frac{4x}{3} + \frac{4}{9} = 0$

Blank Page for Extra work