

MATH 96
EXAM 3

Name

Key

Answer all questions and follow all instructions. Show **all work** for credit. Each problem is worth 5 points unless noted. Good luck ☺

Perform all operations and simplify. For problems 1 – 2, assume variables can represent any real number (use absolute value signs as necessary).

1. $\sqrt{25x^2}$

1. $5|x|$

2. $\sqrt[3]{-64b^9}$

2. $-4b^3$

For the remainder of problems, assume the variables represent **positive** real numbers. Perform all operations and simplify.

3. $\sqrt{175a^2b^3}$
 $\begin{matrix} \wedge \\ 25 \cdot 7 \end{matrix}$

3. $5ab\sqrt{7b}$

4. $\frac{\sqrt{180ab^4}}{\sqrt{5ab^2}} = \sqrt{36b^2}$

4. $6b$

5. $27^{2/3} = (\sqrt[3]{27})^2 = 3^2$

5. 9

6. $y^{2/3} \cdot y^{4/3} = y^{2/3+4/3} = y^{6/3} = y^2$

6. $\sqrt[3]{y^6} = y^2$

7. $\sqrt[3]{-27b^6c^{12}}$

7. $-3b^2c^4$

8. $\sqrt[4]{32x^4y^7} = \sqrt[4]{2^5x^4y^7}$

8. $2xy\sqrt[4]{2y^3}$

9. $2\sqrt{bc}(3\sqrt{c}-\sqrt{b^3c^3}) = 6\sqrt{bc^2} - 2\sqrt{b^4c^4}$

9. $6c\sqrt{b} - 2bc^2$

10. $(\sqrt{5z} + \sqrt{3})(\sqrt{5z} + \sqrt{3})$

10. $5z + 2\sqrt{15z} + 3$

$5z + \sqrt{15z} + \sqrt{15z} + 3$

