

MATH 103 EXAM #4 KEY (SUMMER 2011)

1a. 9

1b. $|r|$

2a. $7^3 = 343$

2b. $1/81^{3/4} = 1/3^3 = 1/27$

3a. $r^{11/9}$

3b. $\frac{1}{m^{1/4}n^{3/4}}$

4a. $10\sqrt{3}$

4b. $11xy^2\sqrt{y}$

4c. $-2tz^2\sqrt[3]{3t^2z}$

4d. $\frac{u\sqrt{u}}{9}$

4e. $45\sqrt{2}$

5. $18 - 4\sqrt{15} + 3\sqrt{15} - 10 = 8 - \sqrt{15}$

6a. $\frac{2\sqrt{6}}{3}$

6b. $8 + 4\sqrt{3}$

7a. $\sqrt{4y-1} = 6 \Rightarrow 4y - 1 = 36 \Rightarrow y = 37/4$

7b. $7z + 1 = z^2 + 2z + 1 \Rightarrow z^2 - 5z = 0 \Rightarrow z = 0, 5$

8a. $4 + 5i$

8b. $27 + 12i$

8c. $\frac{1}{2} - \frac{3}{2}i$

9a. $x^2 + x - 14 = 0 \Rightarrow x = \frac{-1 \pm \sqrt{57}}{2}$

9b. $x = \frac{-4 \pm \sqrt{-20}}{2} = -2 \pm i\sqrt{5}$