

Calculus 201-007-50 C2

Quiz 11

November 26, 2008

Name: SOLUTIONS
Student ID: _____

1. (3 marks). Simplify:

$$\begin{aligned} & 5\sqrt{7} - 3\sqrt{28} + 6\sqrt{63} \\ &= 5\sqrt{7} - 3\sqrt{4}\sqrt{7} + 6\sqrt{9}\sqrt{7} \\ &= 5\sqrt{7} - 3 \cdot 2\sqrt{7} + 6 \cdot 3\sqrt{7} \\ &= 5\sqrt{7} - 6\sqrt{7} + 18\sqrt{7} \\ &= 17\sqrt{7} \end{aligned}$$

2. (3 marks). Simplify:

$$\begin{aligned} & (8x^3y^6)^{\frac{1}{3}} \\ &= (8)^{\frac{1}{3}} x^{3 \cdot \frac{1}{3}} y^{6 \cdot \frac{1}{3}} \\ &= \sqrt[3]{8} x y^2 \\ &= 2xy^2 \end{aligned}$$

3. (4 marks). Rationalize the denominator:

$$\frac{3\sqrt{2} - \sqrt{3}}{2\sqrt{2} + \sqrt{3}}$$

$$= \frac{3\sqrt{2} - \sqrt{3}}{2\sqrt{2} + \sqrt{3}} \cdot \frac{2\sqrt{2} - \sqrt{3}}{2\sqrt{2} - \sqrt{3}} = \frac{6 \cdot 2 - 3\sqrt{2}\sqrt{3} - 2\sqrt{3}\sqrt{2} + 3}{4 \cdot 2 - 3}$$

$$= \frac{12 - 3\sqrt{6} - 2\sqrt{6} + 3}{8 - 3} = \frac{15 - 5\sqrt{6}}{5}$$

$$= \frac{5(3 - \sqrt{6})}{5} = 3 - \sqrt{6}$$