

# Algebra 201-007-50 03

## Quiz 11

November 28, 2008

Name: SOLUTIONS  
Student ID: \_\_\_\_\_

1. (3 marks). Simplify:

$$\begin{aligned} & 4\sqrt{12} - \sqrt{27} + 2\sqrt{48} \\ &= 4\sqrt{4}\sqrt{3} - \sqrt{9}\sqrt{3} + 2\sqrt{16}\sqrt{3} \\ &= 4 \cdot 2\sqrt{3} - 3\sqrt{3} + 2 \cdot 4\sqrt{3} \\ &= 8\sqrt{3} - 3\sqrt{3} + 8\sqrt{3} \\ &= 13\sqrt{3} \end{aligned}$$

2. (3 marks). Simplify:

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

3. (4 marks). Rationalize the denominator:

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

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

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

$$= \frac{6 \cdot 2 - 3\sqrt{6} - 2\sqrt{6} + 3}{4 \cdot 2 - 3} = \frac{12 - 5\sqrt{6} + 3}{8 - 3}$$

$$= \frac{15 - 5\sqrt{6}}{5} = \frac{5(3 - \sqrt{6})}{5}$$

$$= 3 - \sqrt{6}$$