Math 2201 Review Sheet

1. Write as a simplified mixed radical.

a). $\sqrt{18}$ **$3\sqrt{2}$**

b). $\sqrt[3]{135}$ **$3\sqrt[3]{5}$**

c). $9\sqrt{24}$ **$18\sqrt{6}$**

d). $3\sqrt[3]{432}$ **$18\sqrt[3]{2}$**

2. Write as an entire radical.

a). $4\sqrt{12}$ **$\sqrt{192}$**

b). $4\sqrt[3]{5}$ **$\sqrt[3]{320}$**

3. Arrange in ascending order. $\sqrt{120}$, $4\sqrt{10}$, $\sqrt[3]{512}$, $2\sqrt{52}$

$\sqrt[3]{512}$, $\sqrt{120}$, $4\sqrt{10}$, $2\sqrt{52}$

4. Refer to the set of radicals given. Which radicals are like radicals?

$$6\sqrt{3}\ ,14\sqrt{2}\ ,-2\sqrt{3}\ ,\sqrt{25}\ ,\sqrt{12}\ ,\sqrt{27}\ ,8\sqrt{4}\ ,-\sqrt{8}$$

Like: $6\sqrt{3}$, $-2\sqrt{3}$, $\sqrt{12}$, $\sqrt{27}$; $14\sqrt{2}$, $-\sqrt{8}$; $\sqrt{25}$, $8\sqrt{4}$

5. Write in simplest form.

a). $2\sqrt{2} + 5\sqrt{2} + 6\sqrt{2}$ **$13\sqrt{2}$**

b). $-2\sqrt{8} - 15\sqrt{8}$ **$-34\sqrt{2}$**

c). $\sqrt{72} + \sqrt{32} + 3\sqrt{8}$ **$16\sqrt{2}$**

d). $\sqrt{18} - 2\sqrt{48} + \sqrt{147}$ **$3\sqrt{2} - \sqrt{3}$**

e). $6\sqrt{5} \cdot \sqrt{4}$ **$12\sqrt{5}$**

f). $5\sqrt{6} \cdot 8\sqrt{10}$ **$80\sqrt{15}$**

6. Expand and simplify.

a). $\sqrt{3}\,(6 - \sqrt{12})$

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

b). $3\sqrt{5}\,(2\sqrt{7} - \sqrt{5})$

$\mathbf{6\sqrt{35} - 15}$

c). $(\sqrt{6} - 2\sqrt{5})^2$

$\mathbf{26 - 4\sqrt{30}}$

d). $(\sqrt{3} - 3\sqrt{13})(2\sqrt{6} + 2)$

$\mathbf{6\sqrt{2} + 2\sqrt{3} - 6\sqrt{78} - 6\sqrt{13}}$

7. Divide and rationalize the denominator where necessary.

a). $\frac{\sqrt{81}}{\sqrt{3}}$ $\mathbf{3\sqrt{3}}$

b). $\frac{\sqrt{11}}{\sqrt{5}}$ $\mathbf{\frac{\sqrt{55}}{5}}$

c). $\frac{\sqrt{3}}{\sqrt{6}}$ $\mathbf{\frac{\sqrt{2}}{2}}$

d). $\frac{\sqrt{75}}{\sqrt{3}}$ $\mathbf{5}$