

1. Write as a simplified mixed radical.

a).  $\sqrt{18}$       b).  $\sqrt[3]{135}$       c).  $9\sqrt{24}$       d).  $3\sqrt[3]{432}$

2. Write as an entire radical.

a).  $4\sqrt{12}$       b).  $4\sqrt[3]{5}$

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

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

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

5. Write in simplest form.

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

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

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

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

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

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

6. Expand and simplify.

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

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

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

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

7. Divide and rationalize the denominator where necessary.

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

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

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

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