

**Like Radical:** Radicals that have the same \_\_\_\_\_.

**Adding and Subtracting Radicals:** You can add or subtract \_\_\_\_\_.

1)  $2\sqrt{5} + 9\sqrt{5}$  \_\_\_\_\_

2)  $5\sqrt{11} - 8\sqrt{11}$  \_\_\_\_\_

3)  $-4\sqrt{7} + 23\sqrt{7}$  \_\_\_\_\_

4)  $-\sqrt{6} - 7\sqrt{6}$  \_\_\_\_\_

**Multiplying Radicals:** Multiply \_\_\_\_\_ with \_\_\_\_\_  
and \_\_\_\_\_ with \_\_\_\_\_

5)  $-2\sqrt{7} \cdot 9\sqrt{3}$  \_\_\_\_\_

6)  $14\sqrt{2} \cdot 3\sqrt{11}$  \_\_\_\_\_

Simplify the following expressions.

7)  $4\sqrt{20} + 8\sqrt{5}$  \_\_\_\_\_

8)  $-6\sqrt{6} \cdot 8\sqrt{12}$  \_\_\_\_\_

9)  $\sqrt{5}(2 + \sqrt{10})$  \_\_\_\_\_

10)  $\sqrt{96} - 8\sqrt{24}$  \_\_\_\_\_

11)  $(4 + \sqrt{3})(4 - \sqrt{3})$  \_\_\_\_\_

12)  $4\sqrt{7}(6\sqrt{2} - 8)$  \_\_\_\_\_

12)  $-14\sqrt{27} + 10\sqrt{3}$  \_\_\_\_\_

14)  $(\sqrt{5} + \sqrt{7})(\sqrt{5} + \sqrt{7})$  \_\_\_\_\_

**Rationalizing the Denominator:** To be completely simplified, no radical will be in the \_\_\_\_\_ of your final answer.

15)  $\frac{33}{\sqrt{3}}$  \_\_\_\_\_

16)  $\frac{28}{\sqrt{2}}$  \_\_\_\_\_

17)  $\frac{91}{\sqrt{7}}$  \_\_\_\_\_

18)  $\sqrt{\frac{8}{12}}$  \_\_\_\_\_

19)  $\sqrt{\frac{18}{45}}$  \_\_\_\_\_

20)  $\sqrt{\frac{15}{6x^3}}$  \_\_\_\_\_