

Simplify.

1. $\sqrt{2}(\sqrt{6})$

2. $\sqrt{10}(\sqrt{15})$

3. $\sqrt{7}(\sqrt{21})$

4. $\sqrt{30}(\sqrt{105})$

5. $\sqrt{70}(\sqrt{14})(\sqrt{22})$

6. $\sqrt{66}(\sqrt{15})(\sqrt{33})$

7. $5\sqrt{6}(4\sqrt{10})$

8. $6\sqrt{18}(2\sqrt{15})$

9. $-4\sqrt{10}(11\sqrt{30})$

10. $3\sqrt{7}(2\sqrt{14})(5\sqrt{2})$

11. $-5\sqrt{2}(-4\sqrt{6})$

12. $7\sqrt{14}(-2\sqrt{21})(-5\sqrt{42})$

13. $\sqrt{2}(\sqrt{6} - \sqrt{10})$

14. $-4\sqrt{6}(8\sqrt{14} - 5\sqrt{21})$

15. $\sqrt{14}(\sqrt{35} - \sqrt{56})$

16. $2\sqrt{10}(3\sqrt{35} - 6\sqrt{14} - 7\sqrt{30})$

17. $-5\sqrt{70}(2\sqrt{7} - 4\sqrt{30} - \sqrt{154})$

18. $-6\sqrt{33}(4\sqrt{30} - 2\sqrt{55} - \sqrt{66})$

19. $-\sqrt{21}(4\sqrt{18} - 3\sqrt{63} - 4)$

20. $2\sqrt{10}(9\sqrt{20} - 4\sqrt{5} - 6\sqrt{2})$

III. Challenge Problems

1. Simplify: $(2\sqrt{10})^3$

2. Simplify: $(-4\sqrt{6})^3$

3. Simplify: $(\sqrt{21} - 9\sqrt{10})(\sqrt{6} - 4\sqrt{35})$

4. Find a if $\sqrt{a}(\sqrt{6}) = 3\sqrt{2}$.

5. Find b if $\sqrt{10}(\sqrt{5} - \sqrt{b}) = 5\sqrt{2} - 2\sqrt{5}$.