DIRECTIONS: Solve the following equations. Remember to check for extraneous roots. If there are no real solutions, be sure to write that as an answer.

1. $3 = \sqrt[3]{12 + 5a}$

2. $\sqrt{6b + 1} - 2 = 0$

3. $\sqrt{5c^2 - 48} = c\sqrt{2}$

4. $\sqrt{d^2 - 19} - 2d + 11 = 0$

5. $m - 3\sqrt{m} = 10$

6. $8f = 1 - 2\sqrt{f}$

7. $\sqrt[4]{2g^2 + 9} = \sqrt[3]{27}$

8. $\frac{\sqrt[3]{x}}{2} = \sqrt[3]{x - 7}$

9. $7 - \sqrt[3]{9c} = 4$

10. $3\sqrt{x} = 12$

11. $x\sqrt{3} = 12$ (Do you see how this is different from #10?)

12. $2 + 3\sqrt{x} = 8$

13. $2 + x\sqrt{3} = 8$

14. $3x = 7\sqrt{x} - 2$

15. $3x = x\sqrt{7} - 2$

16. $\sqrt{x-7} + \sqrt{x} = 7$

17. $\sqrt{2n-5} - \sqrt{3n+4} = 2$