Solve the following equations.

1. $5 - \left(4 - x^2\right) = x^2 - 2x - 8$

2. $10 + 3x - x^2 - \left(5 - 4x - x^2\right) = 0$

3. $\dfrac{x + 3}{x^2 - 2x} + \dfrac{6}{x^2 - 4} = \dfrac{1}{x}$

4. $\dfrac{5}{9x^2} + \dfrac{1}{6x} = \dfrac{7}{2x}$

5. $\dfrac{2x}{2x - 3} - \dfrac{1}{x + 1} = \dfrac{2x^2 + 5x - 4}{2x^2 - x - 3}$

6. $\dfrac{2x - 3}{3x^2 - x - 2} + \dfrac{5}{3x + 2} = \dfrac{1}{x - 1}$

7. $\dfrac{y + 2}{y^2 - y} - \dfrac{3y}{2y^2 - 4y + 2} = \dfrac{1}{2 - 2y}$

8. $\dfrac{1}{m^2 - m - 2} - \dfrac{1}{m^2 + 3m + 2} = 0$

9. $\dfrac{x^2 - 4x - 32}{x^2 - 8x - 48} = 1$

10. $\dfrac{3x^2 + 17x + 10}{3x^2 - 22x - 16} = 1$

11. $\dfrac{y^2 - y - 56}{y^2 + 8y + 7} = 1$

12. $\dfrac{y^2 - 13y + 40}{y^2 - 4y - 5} = 1$

13. $6n^2 + 13n + 6 - \left(6n^2 + n - 2\right) = 2n - 7$

14. $\dfrac{\dfrac{1}{9} - \dfrac{1}{x}}{\dfrac{1}{9} - \dfrac{1}{x^2}} = 1$

15. $3x - 6 - 2\left(x^2 - 4\right) = 2x^2 - 3x - 4 - 4\left(x^2 - x - 6\right)$

16. $\dfrac{1 - \dfrac{2}{x} - \dfrac{15}{x^2}}{1 - \dfrac{11}{x} + \dfrac{30}{x^2}} = 1$

17. $1 - \dfrac{6}{m^2 - 4} = \dfrac{m}{m + 2}$

18. $\dfrac{4}{x - 2} - \dfrac{7}{x + 5} = 0$

19. $4x^2 - 25 - \left(2x^2 - 5x\right) = \left(2x + 5\right)\left(x - 7\right)$

20. $6n^2 + 13n + 6 - \left(4n^2 - 1\right) = 6n^2 + n - 2 - 4n^2 - 9$