Quadratic Equations

Solve the following quadratic equations by getting them equal to zero and factorising. In later questions you will first need to eliminate fractions first.

1. $x^2 + 4x + 3 = 0$. $x = -1$ or $x = -3$
2. $x^2 + 2x = 8$. $x = 2$ or $x = -4$
3. $a^2 + 7 = 8a$. $a = 7$ or $a = 1$
4. $x^2 + 6x + 9 = 0$. $x = -3$ (repeated)
5. $x^2 = 25$. $x = -5$ or $x = 5$
6. $2t^2 + 9t + 4 = 0$. $t = -4$ or $t = -\frac{1}{2}$
7. $2x^2 + 5x + 3 = 0$. $x = -\frac{3}{2}$ or $x = -1$
8. $3x^2 + 4x + 1 = 0$. $x = -\frac{1}{3}$ or $x = -1$
9. $3x^2 = 5x$. $x = 0$ or $x = \frac{5}{3}$
10. $3x^2 = 8x + 3$. $x = -\frac{1}{3}$ or $x = 3$
11. $4x^2 = 4x + 3$. $x = -\frac{1}{2}$ or $x = \frac{3}{2}$
12. $9\theta^2 = 3\theta + 2$. $\theta = \frac{2}{3}$ or $\theta = -\frac{1}{3}$
13. $8x^2 + 2x = 1$. $x = \frac{1}{4}$ or $x = -\frac{1}{2}$
14. $9x^2 = 4$. $x = -\frac{2}{3}$ or $x = \frac{2}{3}$
15. $3x + \dfrac{3}{x} = 10$. $x = 3$ or $x =$??
16. $\dfrac{4}{x} + \dfrac{3}{x-1} = 5$. $x = 2$ or $x =$??
17. $\dfrac{1}{x+1} + \dfrac{2}{x+2} = 2$. $x = 0$ or $x =$??
18. $\dfrac{3}{x+1} - \dfrac{4}{x+2} = \dfrac{1}{6}$. $x = 1$ or $x = -10$