Algebra Refresher #2

Show work clearly and completely on separate paper for each exercise. **** No calculator allowed ****

1. Expand: $(a+b)^2$

2. Simplify: $\frac{5}{3}-\frac{x-4}{6}$

3. Simplify: $\frac{1}{k+6}+\frac{k}{k-8}$

4. Solve for x: $\frac{1}{x-6}=\frac{x}{x+8}$

5. Expand: $(m^2-2)^3$

6. Simplify: $\frac{4(x+h)^2-4x^2}{h}$

7. Simplify: $\dfrac{\frac{a}{b}-\frac{a}{c}}{c}$

8. Simplify: $\dfrac{\frac{x}{y}-x}{x+\left(\frac{x}{y}\right)^2}$

9. Factorise: $3p^3+5p^2-12p$

10. Factorise: $25m^2-40m+16$

11. Simplify: $\frac{5(x+1)^2-3(x-2)(x+1)}{(x+1)^3}$

12. Simplify: $\frac{1}{a+b}-\frac{1}{a-b}$

13. Simplify: $\frac{x(4-3x)+4(x^2+1)}{x^2-4}$

14. Solve for k: $7-3m=\frac{2}{k}$

15. Solve for y: $\frac{x}{y-2}=x+4$

16. Solve for b: $\frac{a}{b+c}=\frac{6}{b}$

17. Solve for x: $\sqrt{x+5}=7$

18. Solve for x: $\sqrt{x+5}=7-x$

19. Is there anything incorrect with the following solution of the equation $t^2-t-6=4(t-3)$?

$t^2-t-6=4(t-3) \Rightarrow (t-3)(t+2)=4(t-3)$

$\frac{(t-3)(t+2)}{t-3}=\frac{4(t-3)}{t-3} \Rightarrow t+2=4 \Rightarrow t=2$

therefore, the solution is $t=2$

20. Solve for w: $w^4-3w^2-4=0$

21. Solve for x: $|x-5|=9$

22. Simply: $\dfrac{\sqrt{x-2}+\frac{5}{\sqrt{x-2}}}{x-2}$

23. Solve for x: $\sqrt{x^2+5}+x=5$

24. Solve form m: $2m^2+7m\geq 4$

25. Solve for x: $\frac{x+3}{x-2}<1$

[worked solutions attached]