Application on indefinite integral

Calculate the following indefinite integrals:

1. $\int(2x + x\sqrt{x} + \frac{1}{x^2})\, dx$	2. $\int(1 + 2\sqrt{x})^2 x^2 \, dx$	3. $\int \frac{x\sqrt{x}+1}{x^3}\, dx$
4. $\int \sin(2x)\, dx$	5. $\int \cos(3x)\, dx$	6. $\int \tan^2(5x)\, dx$
7. $\int(2 + \sec^2(2x))\, dx$	8. $\int \cos^2(2x)\, dx$	9. $\int \sin^2(3x)\, dx$
10. $\int(3 + \tan^2 x)\, dx$	11. $\int \sec(2x)\tan(2x)\, dx$	12. $\int \frac{(1+x^2)^2}{x^2}\, dx$
13. $\int \frac{x^2\sqrt{x}+1}{3x\sqrt{x}}\, dx$	14. $\int(2 + 3\cos^2(2x))\, dx$	15. $\int \cos^2 x\sin^2 x \, dx$
16. $\int \cos^4 x \, dx$	17. $\int(\sin^2(2x) + \cos^2(2x))\, dx$	18. $\int(\cos^2 x - \sin^2 x)\, dx$
19. $\int(2\cos^2 x + 2\sin^2 x)^{31}\, dx$	20. $\int(\sec^2(3x) + \csc^2(3x))\, dx$	21. $\int \frac{1}{\cos^2 x}\, dx$

Use substitution method to calculate the following integrals;

1. $\int \sqrt{3x+1} \ dx$	2. $\int x^2 \sqrt{2x^3+1} \ dx$
3. $\int \cos^3(2x)\sin(2x) \ dx$	4. $\int \frac{\sin(2x)}{\sqrt{3+\cos(2x)}} \ dx$
5. $\int (3+2\tan^3 x)\sec^2 x \ dx$	6. $\int \tan^3(\frac{x}{2})\sec^2(\frac{x}{2}) \ dx$
7. $\int \sec^3 x \tan x \ dx$	8. $\int \frac{x}{(x^2+1)^2} \ dx$
9. $\int \frac{2+3\tan^2 x}{\cos^2 x} \ dx$	10. $\int (3\tan^3 x + 1)(1+\tan^2 x) \ dx$
11. $\int \frac{\cos\sqrt{x}}{\sqrt{x}} \ dx$	12. $\int \frac{\tan^2(3\sqrt{x})}{\sqrt{x}} \ dx$
13. $\int \frac{\cos\sqrt{x}}{\sqrt{x}} \ dx$	14. $\int \frac{\sec^2(\frac{1}{x})}{x^2} \ dx$
15. $\int \cos^2(2x+\frac{\pi}{4}) \ dx$	16. $\int \sin^2(3x-\frac{\pi}{2}) \ dx$
17. $\int \frac{x}{\sqrt{x^2+1}}$	18. $\int (2+\cos(3x))^2 \sin(3x)$
19. $\int (2+\cos^2 x)\sin x \ dx$	20. $\int \frac{\sin(2x)}{(2+3\cos(2x))^2} \ dx$
21. $\int (2+\tan^2 x)^2 \sec^2 x \ dx$	22. $\int \frac{\cos^2(\frac{1}{t})}{t^2} \ dt$
23. $\int \frac{\sin^2(\sqrt{x})}{\sqrt{x}} \ dx$	24. $\int \tan^2(2x)\sec^2(2x) \ d$