Worksheet #13

In Exercise 1-8, find f ' (a) for the given value for a.

1. $y = x^2 \tan x;\ a = p$
2. $y = x^2(\cos x) - \sin x;\ a = 0$
3. $y = \sin\ x(\cos x - 1); a = p$
4. $y = (\cos x + 1)(x \sin x - 1);\ a = \frac{p}{2}$
5. $y = x(\cos x) + x(\sin\ x);\ \ a = \frac{p}{4}$
6. $y = \tan x + \sec x;\ a = \frac{p}{6}$
7. $y = 2\cot x - \csc x;\ a = \frac{2p}{3}$
8. $y = \frac{1}{\cot x - 1};\ \ a = \frac{3p}{4}$

Find dy/dx.

9. $y^2 - 8y + x^2 = 5$
10. $x^2 + 2y^2 = 7$
11. $x^3 + y^3 = a^3$
12. $3x^2 + 4y^2 = 12$
13. $x^{1/2} + y^{1/2} = 5^{1/2}$
14. $x^3 + y^3 - 3x^2 + 3y^2 = 0$
15. $x^2 y^3 = 25$
16. $x^3 + 3y^2 = 4$
17. $y^3 - 6y + x^2 = 0$
18. $x^2 y^2 = k^4$
19. $x^3 + y^3 - 3axy = 0$
20. $y^2 = \frac{x^2}{x - 4}$

Answers: 1. p^2 2. -1 3. 2 4. $2 - \frac{p}{2}$ 5. $\sqrt{2}$ 6. 2 7. $-\frac{10}{3}$ 8. $\frac{1}{2}$ 9. $\frac{x}{y-4}$ 10. $-\frac{x}{2y}$ 11. $-\frac{x^2}{y^2}$

12. $-\frac{3x}{4y}$ 13. $\frac{-\sqrt{y}}{\sqrt{x}}$ 14. $\frac{x(2-x)}{y(y+2)}$ 15. $-\frac{2y}{3x}$ 16. $\frac{-x^2}{2y}$ 17. $-\frac{2x}{3(y^2-2)}$ 18. $-\frac{y}{x}$ 19. $\frac{ay - x^2}{y^2 - ax}$

20. $\frac{2x - y2}{2y(x-4)}$ or $\frac{x(x-8)}{2y(x-4)^2}$