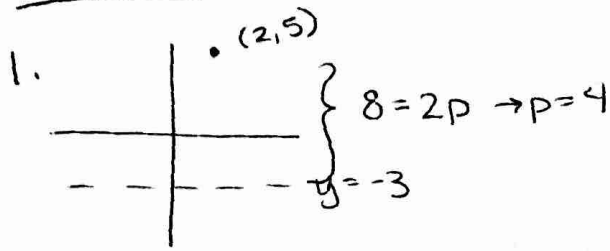
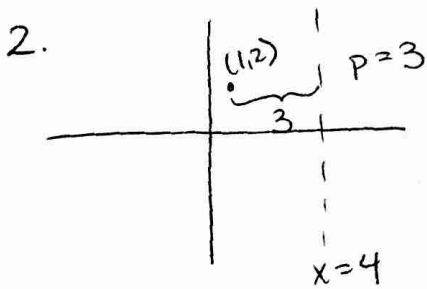


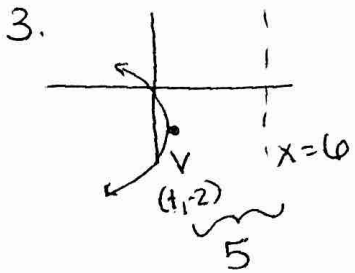
HW103



(2, 1) vertex

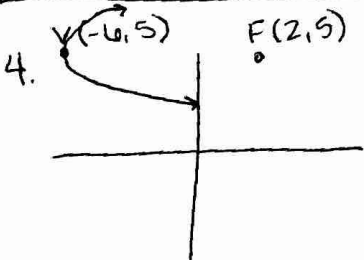


$$F(-2, 2)$$



$p = 5 \rightarrow$ negative

$$(y+2)^2 = -20(x-1)$$



$p = 8$

$$(y-5)^2 = 32(x+6)$$

5. $D = \sqrt{(7+4)^2 + (-5)^2}$

$$D = \sqrt{121 + 25}$$

$$D = \sqrt{146}$$

6. $\sqrt{55} = \sqrt{(x-5)^2 + (-7+1)^2}$

$$55 = (x-5)^2 + 36$$

$$55 = x^2 - 10x + 25 + 36$$

$$0 = x^2 - 10x + 4$$

$$x = \frac{+10 \pm \sqrt{100 - 4(1)(4)}}{2}$$

$$x = \frac{10 \pm \sqrt{76}}{2}$$

$$x = \frac{10 \pm 2\sqrt{19}}{2}$$

$$x = 5 \pm \sqrt{19}$$

7. $x^2 + 8x + 16 + y^2 - 10y + 25 = 35 + 16 + 25$

$$(x+4)^2 + (y-5)^2 = 76$$

center $(-4, 5)$
 radius $\sqrt{76} = 2\sqrt{19}$

8. $x^2 - 16x + 64 + y^2 + 6y + 9 = -3 + 64 + 9$

$$(x-8)^2 + (y+3)^2 = 70$$

center $(8, -3)$
 radius $\sqrt{70}$

$$9. (x-3)^2 + (y+9)^2 = \sqrt{11}^2$$

$$x^2 - 6x + 9 + y^2 + 18y + 81 = 11$$

$$\boxed{x^2 + y^2 - 6x + 18y + 79 = 0}$$

$$10. (x-8)^2 + (y-4)^2 = 4 \quad 16\pi = \pi r^2$$

$$x^2 - 16x + 64 + y^2 - 8y + 16 = 4 \quad 16 = r^2$$

$$4 = r$$

$$\boxed{x^2 + y^2 - 16x - 8y + 76 = 0}$$

$$11. \frac{32+x}{80+x} = \frac{70}{100}$$

$$100(32+x) = 70(80+x)$$

$$3200 + 100x = 5600 + 70x$$

$$30x = 2400$$

$$\boxed{x = 80}$$

$$12. \frac{12+x}{30+x} = \frac{65}{100}$$

$$65(30+x) = 100(12+x)$$

$$1950 + 65x = 1200 + 100x$$

$$750 = 35x$$

$$21.42 = x$$

$$\downarrow$$

$$\boxed{22 \text{ games}}$$

$$13. \frac{400(.62) + x}{400 + x} = \frac{70}{100}$$

$$70(400+x) = 100(248+x)$$

$$28000 + 70x = 24800 + 100x$$

$$3200 = 30x$$

$$\boxed{106.7 \text{ mL} = x}$$

$$14. \frac{14 \left(\frac{x+2}{x} \right) \frac{x+3}{x(x-2)} - \frac{14}{(x-2)(x+2)}}{\left(\frac{x}{x} \right)}$$

$$\frac{2x^2 + 4x + 3x + 6 - 14x}{x(x-2)(x+2)}$$

$$\frac{2x^2 - 7x + 6}{x(x-2)(x+2)}$$

$$\frac{(2x-3)(x-2)}{x(x-2)(x+2)}$$

$$\boxed{\frac{2x-3}{x(x+2)}}$$

$$15. \frac{7(x-5) - 4(x+6)}{(x-5)(x+6)}$$

$$\frac{7x - 35 - 4x - 24}{(x-5)(x+6)}$$

$$\boxed{\frac{3x - 59}{(x-5)(x+6)}}$$

$$16. \frac{2x(7-x)}{(2x+1)(x-7)} = \frac{-2x(x-7)}{(2x+1)(x-7)}$$

$$= \boxed{\frac{-2x}{2x+1}}$$

$$17. \frac{9(3+m)}{45}$$

$$\boxed{\frac{3+m}{5}}$$

$$18. \frac{2(8x-5)}{4(x+2)} \cdot \frac{(x+2)}{(8x-5)(x+2)} = \frac{2(x+2)}{7(8x-5)}$$

$$19. \frac{4b(2a+3b)}{(2a+3b)(2a-3b)}$$

$$\frac{4b}{2a-3b}$$

$$20. \frac{2}{(2x-3)(2x+3)} + \frac{x}{(2x+3)(x-4)}$$

$$\frac{2(x-4) + x(2x-3)}{(2x-3)(2x+3)(x-4)}$$

$$\frac{2x-12+2x^2-3x}{(2x-3)(2x+3)(x-4)}$$

$$\boxed{\frac{2x^2-x-12}{(2x-3)(2x+3)(x-4)}}$$

~~(2x)(x)~~

$$21. \frac{(a+4b)(a-2b)}{a-b} \cdot \frac{(a-b)(a+b)}{3(a-2b)}$$

$$\boxed{\frac{(a+4b)(a+b)}{3}}$$

$$22. \frac{3x-1}{x(x+3)} + \frac{2}{(x+3)(x-4)}$$

$$\frac{3x^2-12x-x+4+2x}{x(x+3)(x-4)}$$

$$\boxed{\frac{3x^2-x+4}{x(x+3)(x-4)}}$$

~~(3x)(x)~~

$$23. \frac{3(3x+4)}{4x^2} \cdot \frac{4x^2}{(3x+4)(x-7)}$$

$$\boxed{\frac{12}{x(x-7)}}$$

$$24. \frac{5x-9x}{45} = \frac{90}{45}$$

$$-4x = 90$$

$$\boxed{x = -22.5}$$

$$25. \frac{3x-36x}{27} = \frac{135}{27}$$

$$-33x = 135$$

$$\boxed{x = \frac{135}{-33}}$$

$$26. 32-24x=6x+5$$

$$27=30x$$

$$\boxed{\frac{9}{10} = x}$$

$$27. 7x+56=3x-4$$

$$4x = -60$$

$$\boxed{x = -15}$$

$$28. -10x-15=9-4x$$

$$-6x = 24$$

$$\boxed{x = -4}$$

$$29. R4, U3, \text{ over } x, \text{ VD by } 4$$

$$y = \frac{-4}{x-4} + 3$$

$$30. L8, D9, \text{ VD by } 12$$

$$y = \frac{12}{(x+8)^2} - 9$$

31-34 see second link on answers page

35. R2, U4 PF $1/x^2$

$$y = \frac{1}{(x-2)^2} + 4$$

36. R6, D1, VD by 3 PF $1/x$, over x-axis

$$y = -\frac{3}{x-6} - 1$$

37. over x-axis, L1, U3, VD by 2

$$y = -\frac{2}{(x+1)^2} + 3$$