

Ch. 9 Summary:

distance:

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

midpoint:

$$M = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$$

Circles: $(x-h)^2 + (y-k)^2 = r^2$

$(h, k) \rightarrow$ center

$r \rightarrow$ radius

$(h, k) = (0, 0)$

when the origin is the center: $x^2 + y^2 = r^2$

Circle not in standard form:

$$x^2 + y^2 + 4x + 8y - 7 = 0$$

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$$x^2 + 4x + \boxed{4} + y^2 + 8y + \boxed{16} = 7 + \boxed{4} + \boxed{16}$$

$(x+2)^2 + (y+4)^2 = 27$

center: $(-2, -4)$ $r: \sqrt{27} \rightarrow 3\sqrt{3}$

Parabolas:

$$(x-h)^2 = 4p(y-k)$$

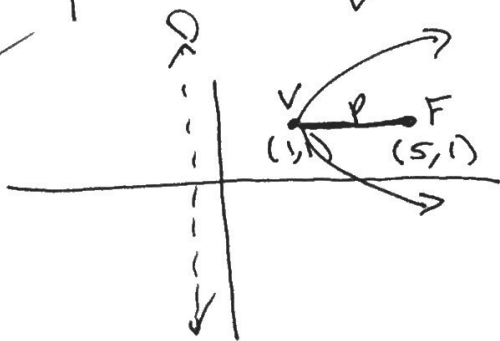
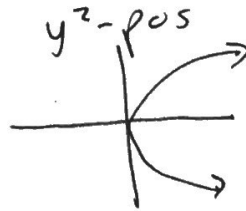
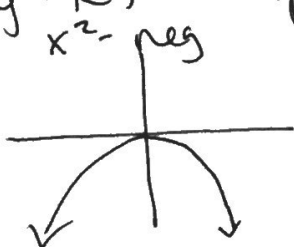
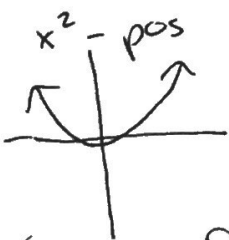
$$(y-k)^2 = 4p(x-h)$$

$(h, k) = (0, 0)$

$$x^2 = 4py$$

$$y^2 = 4px$$

$$y^2 = -4px$$



$$(y-k)^2 = 4p(x-h)$$

$$(y-1)^2 = 4 \cdot 4(x-1)$$

$$(y-1)^2 = 16(x-1)$$

(h, k)
vertex

p is the
distance between
 $F + V$

Systems of Equations: 9.7

$$2x + 4y = 4$$

$$x^2 = y$$

} solution is where they intersect (use a calculator)

9.7

You can also use substitution

$$2x + 4(x^2) = 4$$

.....
solve for x , then y