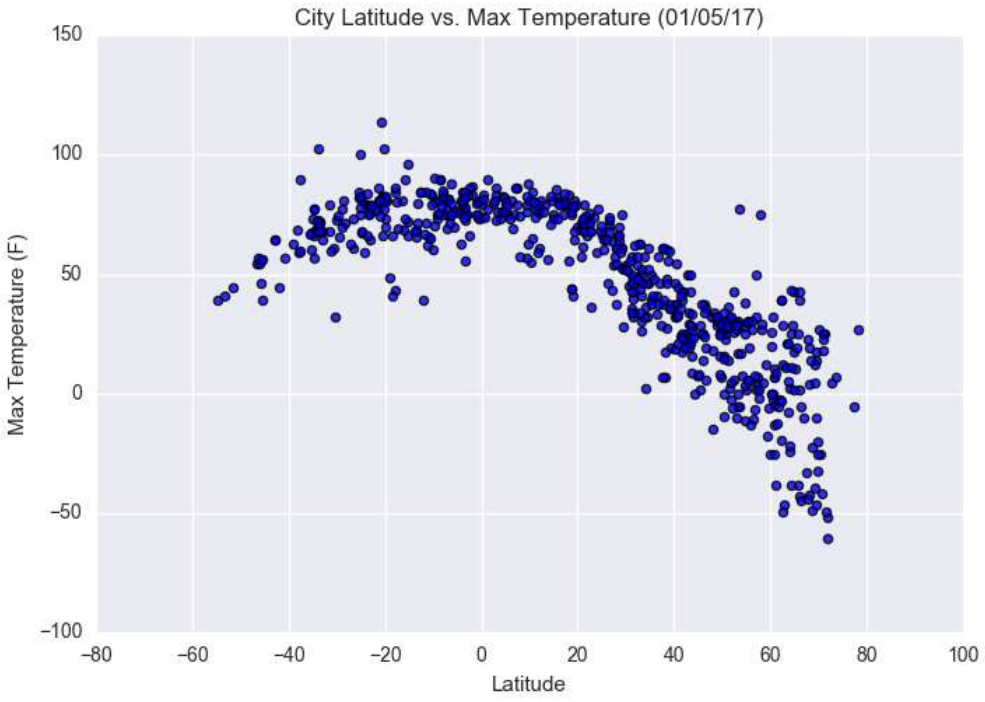
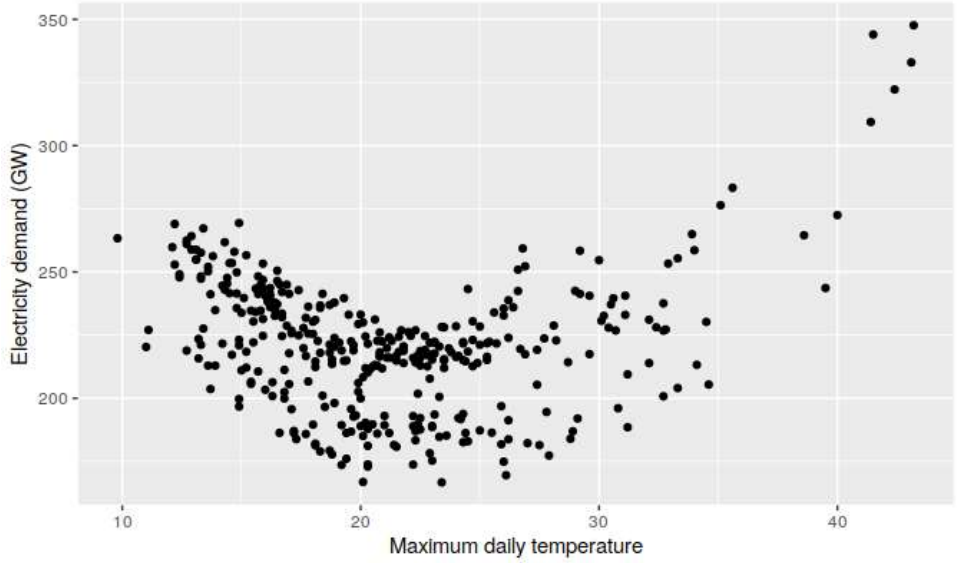
Name: _____ Date: _____





A quadratic relationship is

- it will look like a parabola
- +ve - smile shape / -ve - frown shape
- very symmetrical

There are 3 forms that we will see in this chapter:

1. factored form - x- intercepts. $(x=m,n)$
   $y=(x-m)(x-n)$
2. vertex form - vertex (bottom or top) (min / max.)
   $y=a(x-p)^2+q$ (p,q)
3. Standard form - y-intercept $(y=c)$
   $y=ax^2+bx+c$

Each form has its own advantages when it comes to graphing, so it is helpful to be able to move between forms.

Example Convert to Standard Form $y=ax^2+bx+c$

a. $y=14x+x^2-5$ b. $y=(x-4)(2x+1)$ c. $y=3x(x-6)+11$

$y=x^2+14x-5$

F O I L

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

$y=2x^2-7x-4$

$y=3x^2-18x+11$

Example Convert to Factored Form $y=(x-m)(x-n)$

d. $y=x^2+6x+8$ e. $y=x^2-7x+10$ f. $y=2x^2+x-6$

$2\times 4=8$, $2+4=6$

$y=x^2+2x+4x+8$

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

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

$-5\times -2=10$, $-5+-2=-7$

$y=x^2-5x-2x+10$

$=x(x-5)-2(x-5)$

$=(x-5)(x-2)$

$4\times -3=-12$, $4+-3=+1$

$y=2x^2+4x-3x-6$

$=2x(x+2)-3(x+2)$

$=(x+2)(2x-3)$

$$y = 2x^2 + 8x + 6$$
$$= 2(x^2 + 4x + 3)$$