Yellow Sheets

Conic Sections

by Jason C. McDonald

About Yellow Sheets

No, they're not yellow (unless you printed them on that color paper.) Back when I was taking Pre-Calculus, I had a five subject notebook I used for my class notes. I would write especially important facts on the yellow divider pages, so I could find them easily later. Since then, I have frequently referenced those “yellow sheets” while tutoring at our local community college, often copying them down for the tutee for keep. Finally, I decided to create a high-quality set of these “yellow sheets”, modeled after the charts I have successfully used in tutoring.

Thus, “Yellow Sheets” refers to the theory of content: these one-page charts and graphs contain only that information which you would write on a notebook divider page in your class notes.

Using Yellow Sheets

These are intended to be learning *tools*. They are no substitution for one-on-one explanations, lectures, reading the textbook, or doing the work. Tutors using Yellow Sheets should consider working the example problem with the student, explaining all the concepts contained therein.

About Jason C. McDonald

Jason C. McDonald is the CEO and Lead Developer of MousePaw Games, which is dedicated to furthering education through technology, as well as through resources such as this.

Visit MousePaw Games online: www.mousepawgames.com
More about Jason C. McDonald: www.indelibleblue pen.com

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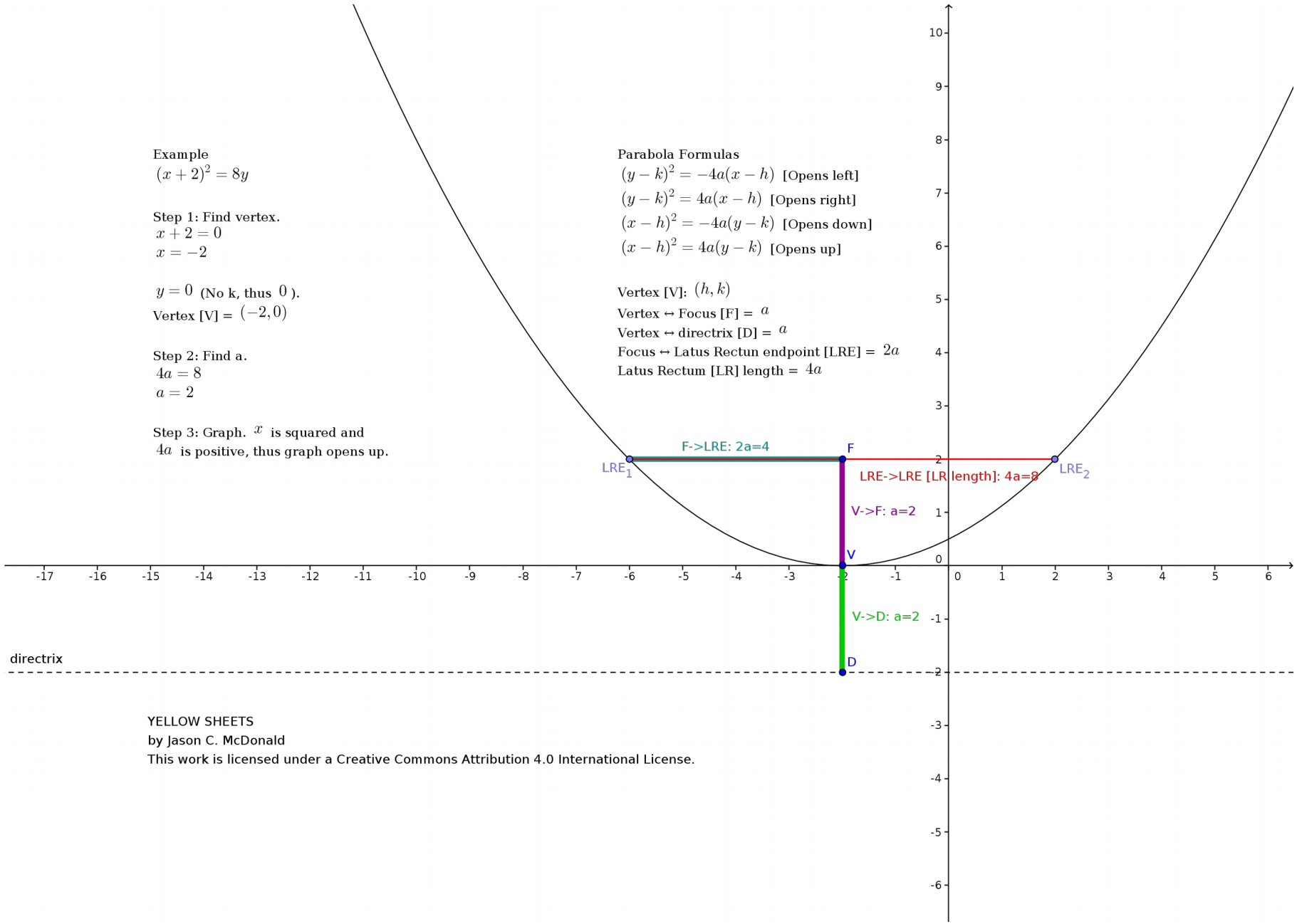


Example

$$\frac{(x-1)^2}{25}+\frac{y^2}{16}$$

Step 1: Find center

$x-1=0$

$x=1$

$y=0$ (No k, thus 0).

Center [C] = $(1,0)$

Step 2: Find a and b.

$a=\sqrt{a^2}=\sqrt{25}=5$

$b=\sqrt{b^2}=\sqrt{16}=4$

Step 3: Find c.

$c^2=a^2-b^2=25-16=9$

$c=\sqrt{c^2}=\sqrt{9}=3$

Step 4: Graph. x^2 and a^2 are together, so the ellipse is longer along the x-axis.

Ellipse Formulas

$\frac{(x-h)^2}{a^2}+\frac{(y-k)^2}{b^2}=1$ Longer along x-axis

$\frac{(y-k)^2}{a^2}+\frac{(x-h)^2}{b^2}=1$ Longer along y-axis

NOTE: a^2 may sometimes appear in the second denominator. However, remember... $a>b>0$

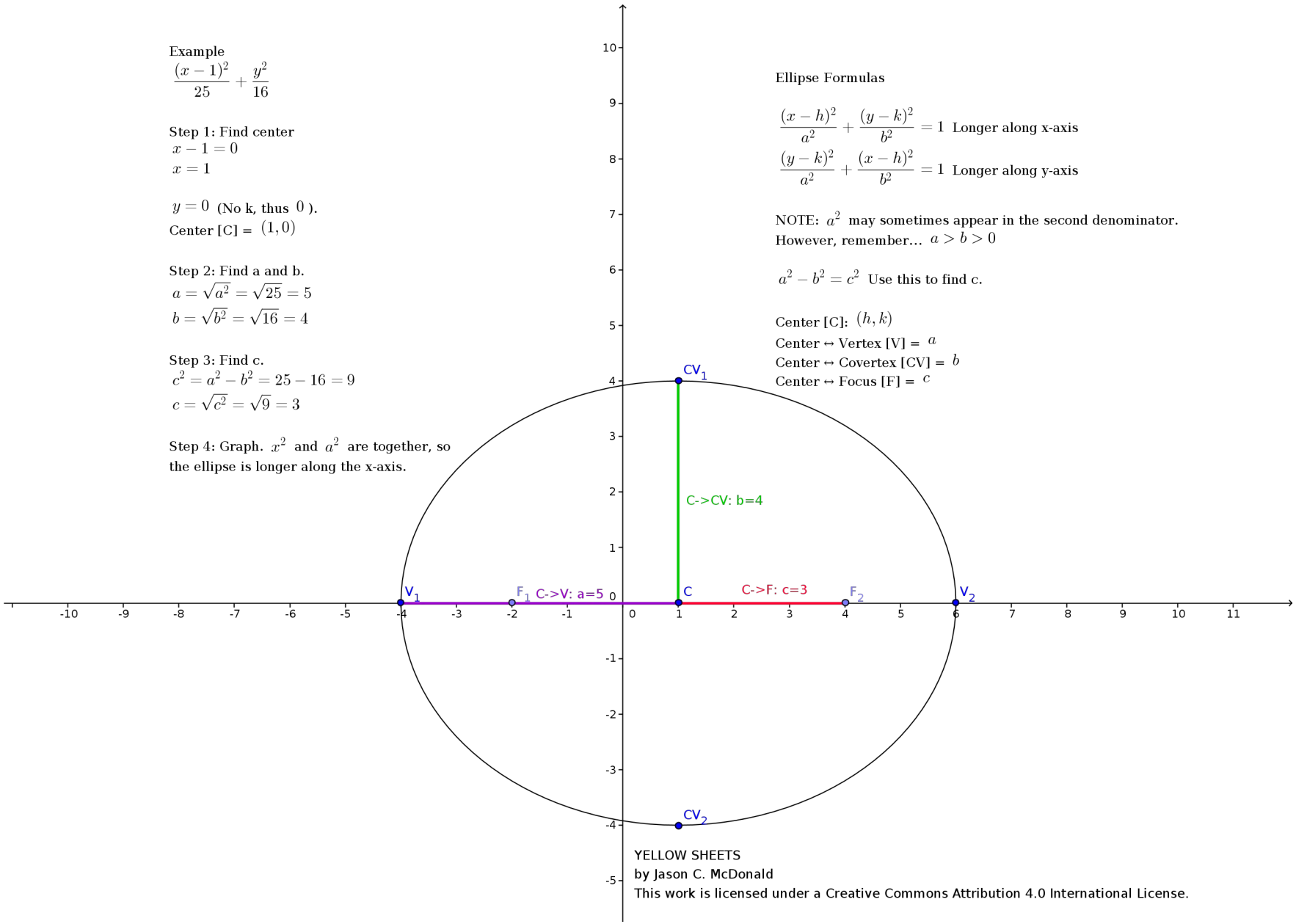
$a^2-b^2=c^2$ Use this to find c.

Center [C]: (h,k)

Center ↔ Vertex [V] = a

Center ↔ Covertex [CV] = b

Center ↔ Focus [F] = c



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