DIRECTIONS: Graph each ellipse. Identify its center, direction of the major axis, vertices, co-vertices, and foci. Answers for #1-8 start on Page 3.

1. $\frac{x^2}{16}+\frac{y^2}{25}=1$

2. $x^2+9y^2=36$

3. $x^2+4y^2=16$

4. $3x^2+y^2=9$

5. $x^2+25y^2=100$

6. $2x^2+y^2=8$

7. $5x^2+9y^2=45$

8. $x^2+9y^2=1$

DIRECTIONS: Find an equation for an ellipse having the given intercepts.

9. x-intercepts: ± 3
y-intercepts: ± 4

$\frac{x^2}{9}+\frac{y^2}{16}=1$

10. x-intercepts: ± 2
y-intercepts: $\pm\sqrt{2}$

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

11. x-intercepts: $\pm\sqrt{6}$
y-intercepts: $\pm 2\sqrt{3}$

$\frac{x^2}{6}+\frac{y^2}{12}=1$

DIRECTIONS: Find an equation of an ellipse with the given information.

12. Foci: $(0,-5),(0,5)$
Sum of focal radii: 20

$\frac{x^2}{75}+\frac{y^2}{100}=1$

13. Foci: $(0,-4),(0,4)$
Sum of focal radii: 24

$\frac{x^2}{128}+\frac{y^2}{144}=1$

14. Foci: $(-9,0),(9,0)$
Sum of focal radii: 30

$\frac{x^2}{225}+\frac{y^2}{144}=1$

Example 1 – Graph the ellipse $\frac{x^2}{9}+\frac{y^2}{4}=1$. Identify its center, direction of the major axis, verticies, co-verticies, and foci.

Example 2 – Graph the ellipse $25x^2+4y^2=100$. Identify its center, direction of the major axis, verticies, co-verticies, and foci.

Example 3 - Find an equation for an ellipse having the given intercepts.

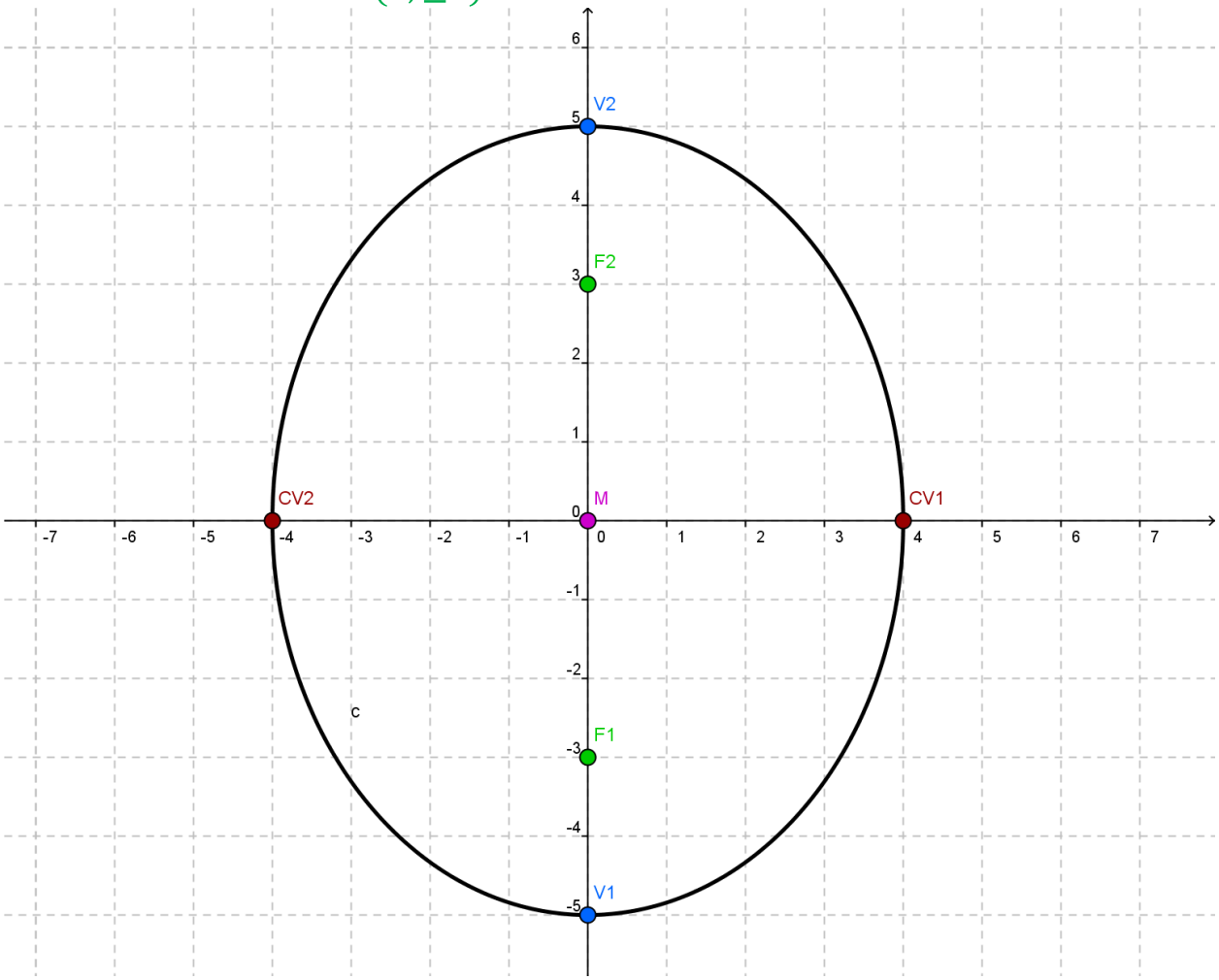
x-intercepts: ± 5
y-intercepts: ± 2

Example 4 – Find an equation of an ellipse with the given information.

Foci: $(-6,0),(6,0)$
Sum of focal radii: 18

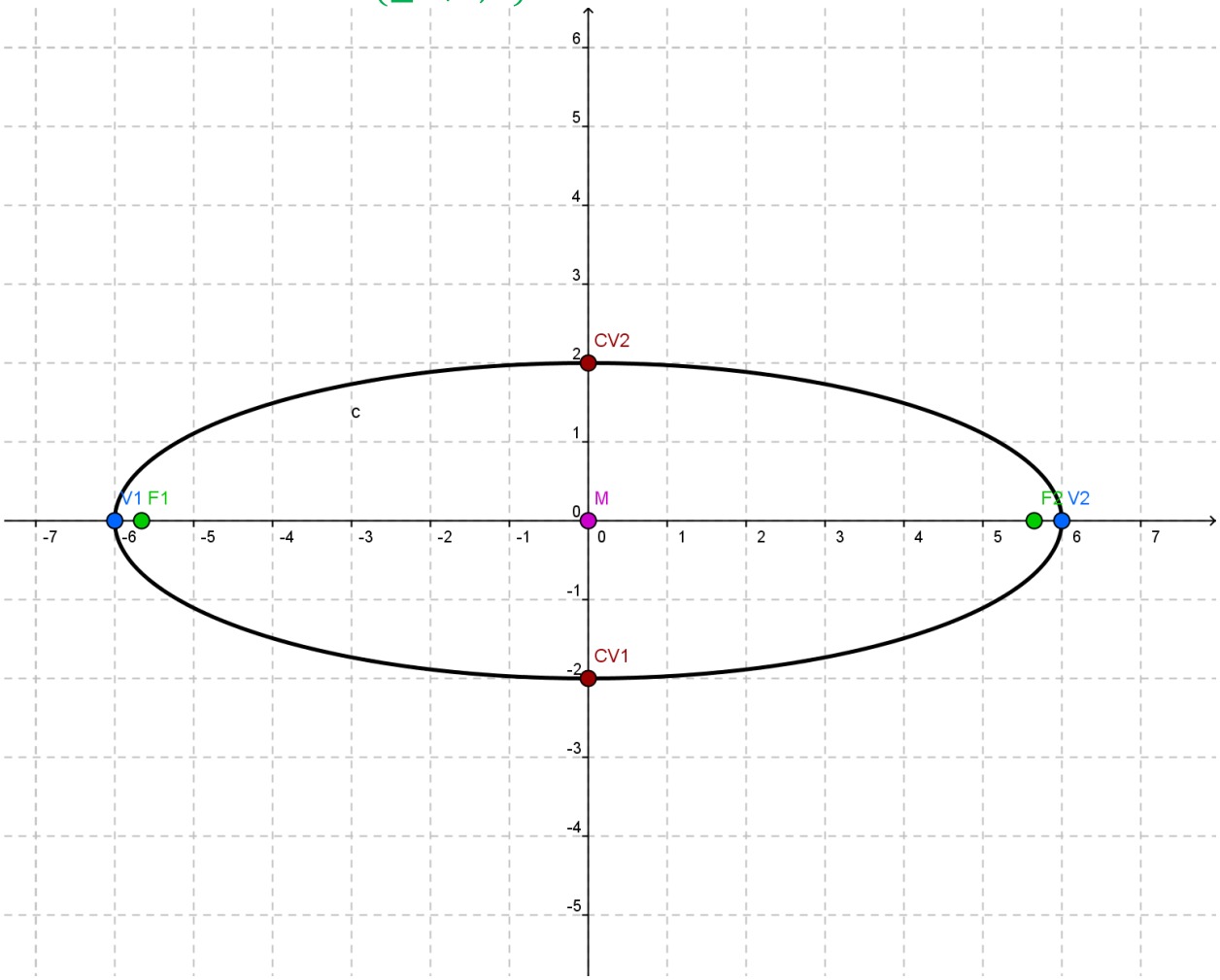
1. $\frac{x^2}{16} + \frac{y^2}{25} = 1$

Center:	(0,0)
Major Axis:	Vertical
Verticies:	$(0, \pm 5)$
Co-Verticies:	$(\pm 4, 0)$
Foci:	$(0, \pm 3)$



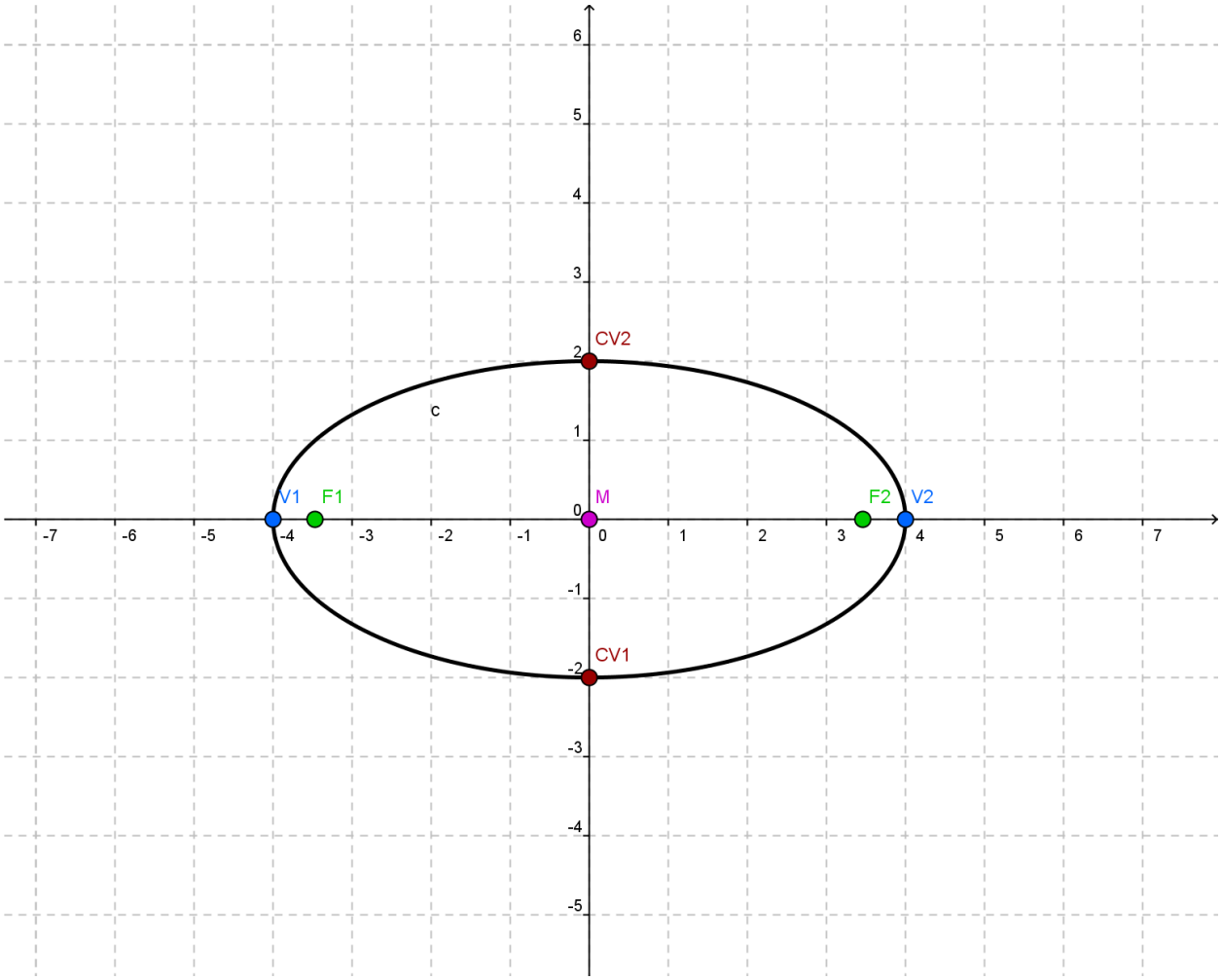
2. $x^2 + 9y^2 = 36$

Center: (0,0)
Major Axis: Horizontal
Verticies: $(\pm 6, 0)$
Co-Verticies: $(0, \pm 2)$
Foci: $(\pm 4\sqrt{2}, 0)$



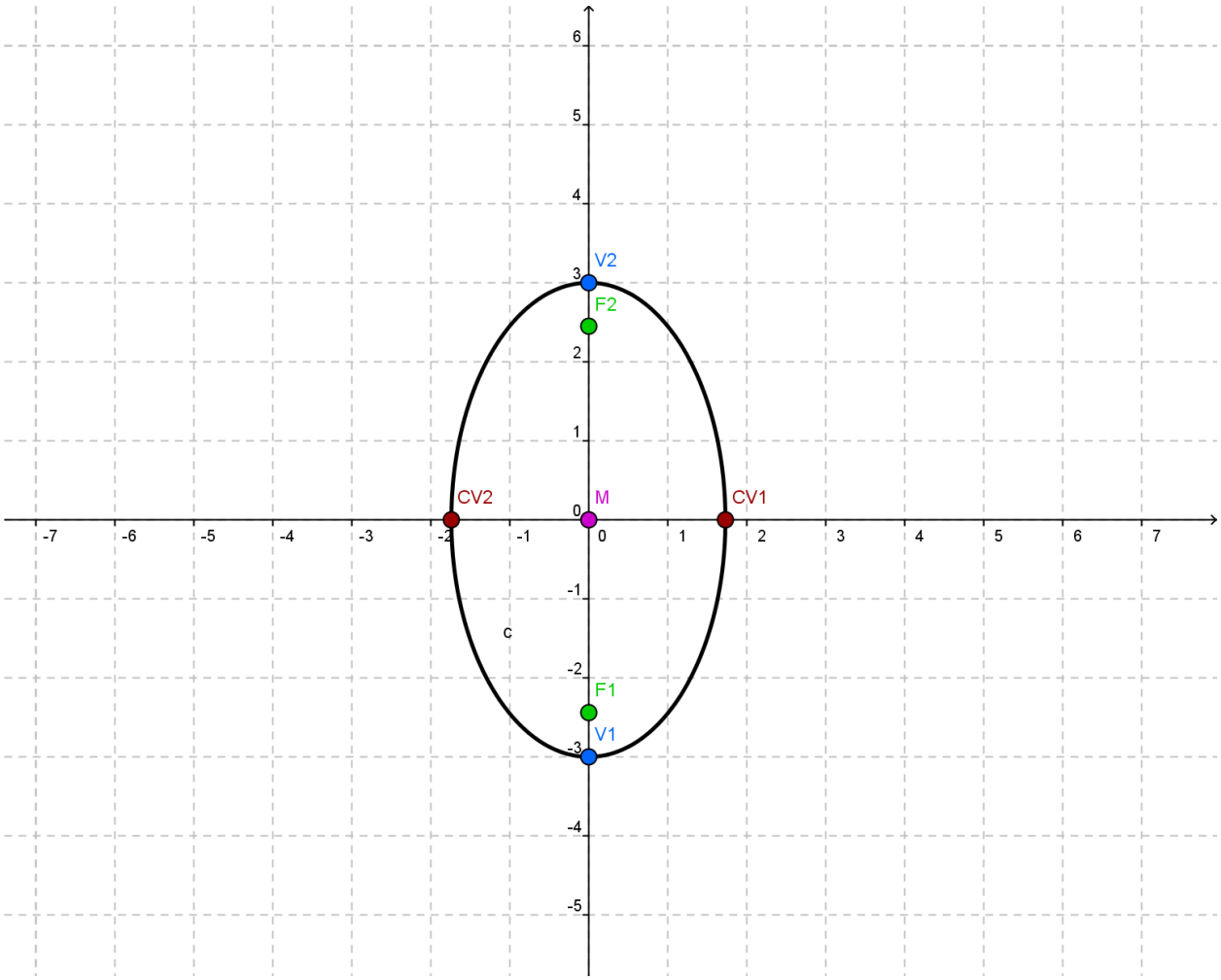
3. $x^2 + 4y^2 = 16$

Center:	(0,0)
Major Axis:	Horizontal
Verticies:	$(\pm 4, 0)$
Co-Verticies:	$(0, \pm 2)$
Foci:	$(\pm 2\sqrt{3}, 0)$



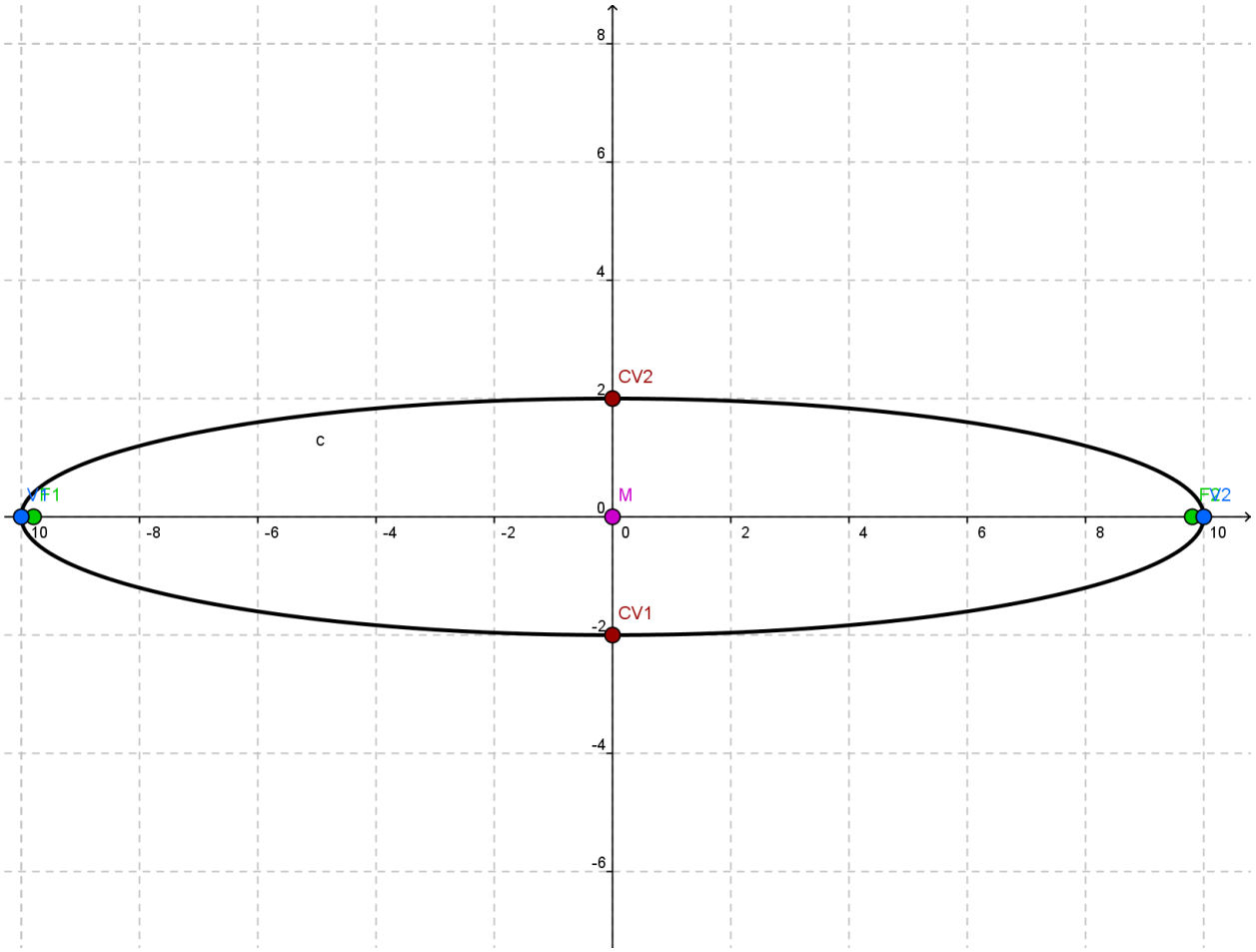
4. $3x^2 + y^2 = 9$

Center:	(0,0)
Major Axis:	Vertical
Verticies:	$(0, \pm 3)$
Co-Verticies:	$(\pm\sqrt{3}, 0)$
Foci:	$(0, \pm\sqrt{6})$



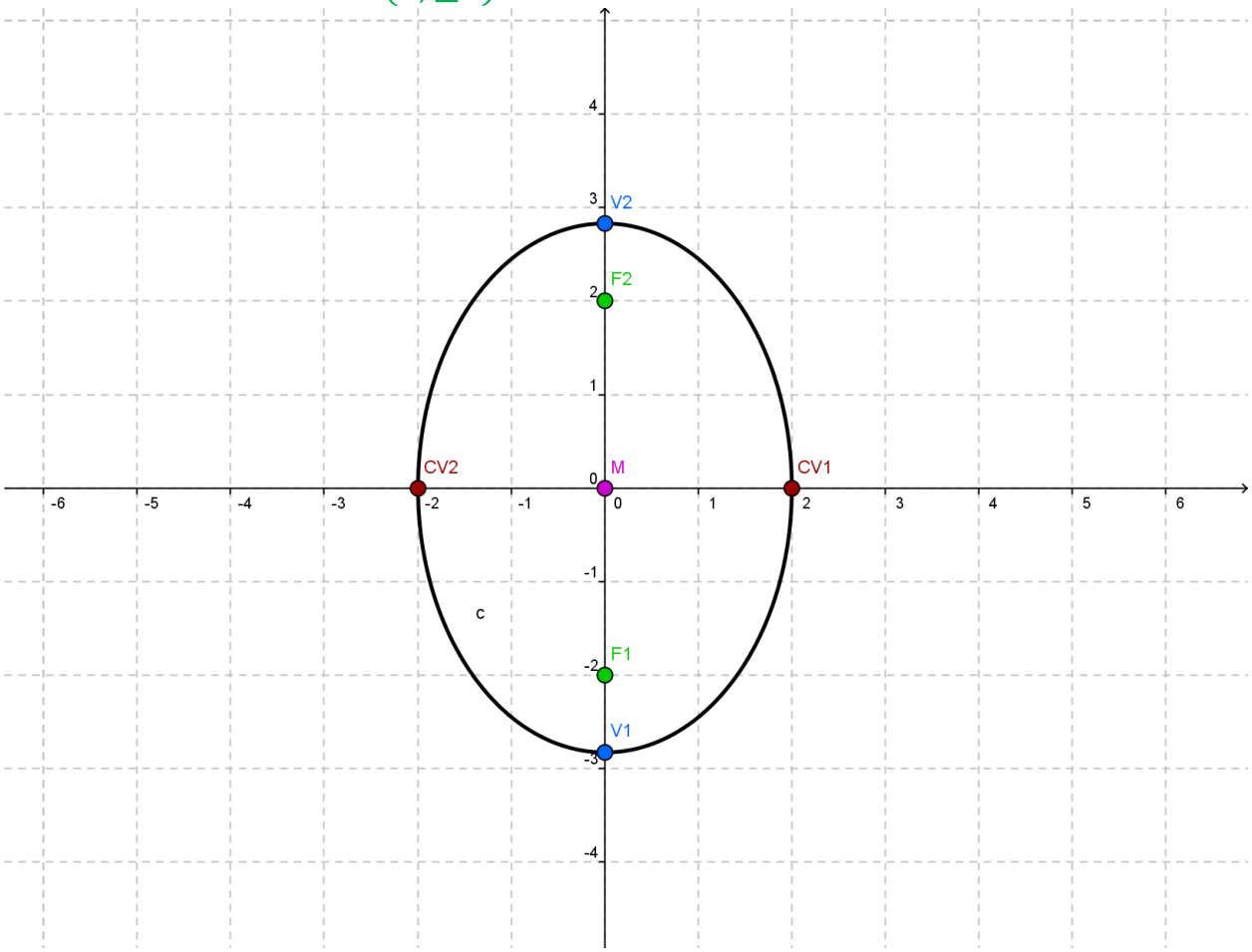
5. $x^2 + 25y^2 = 100$

Center:	(0,0)
Major Axis:	Horizontal
Verticies:	$(\pm 10, 0)$
Co-Verticies:	$(0, \pm 2)$
Foci:	$(\pm 4\sqrt{6}, 0)$



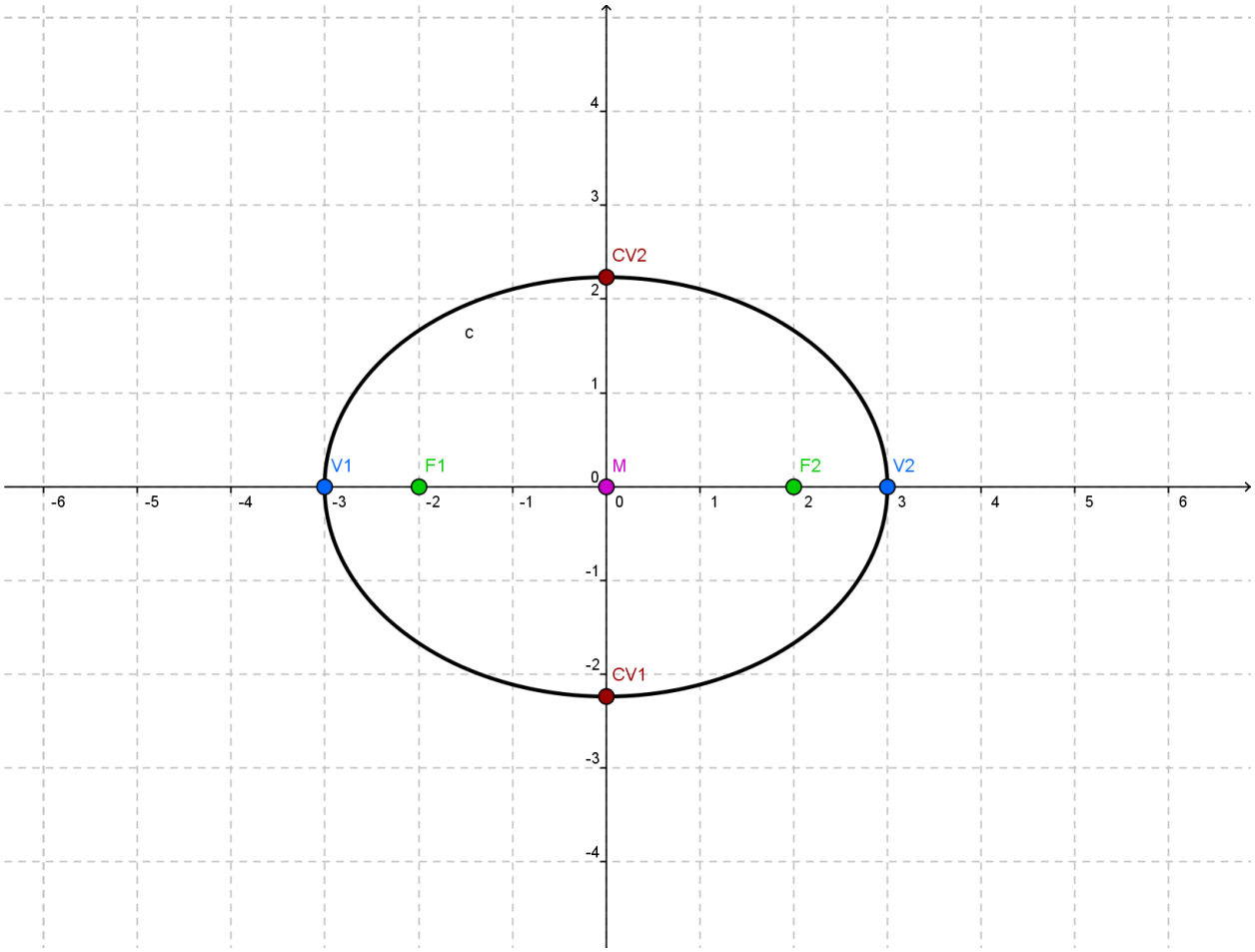
6. $2x^2 + y^2 = 8$

Center: (0,0)
Major Axis: Vertical
Verticies: $(0, \pm 2\sqrt{2})$
Co-Verticies: $(\pm 2, 0)$
Foci: $(0, \pm 2)$



7. $5x^2 + 9y^2 = 45$

Center:	(0,0)
Major Axis:	Horizontal
Verticies:	$(\pm 3, 0)$
Co-Verticies:	$(0, \pm\sqrt{5})$
Foci:	$(\pm 2, 0)$



8. $x^2 + 9y^2 = 1$

Center: (0,0)
Major Axis: Horizontal
Verticies: $(\pm 1, 0)$
Co-Verticies: $(0, \pm \frac{1}{3})$
Foci: $(\pm \frac{2\sqrt{2}}{3}, 0)$