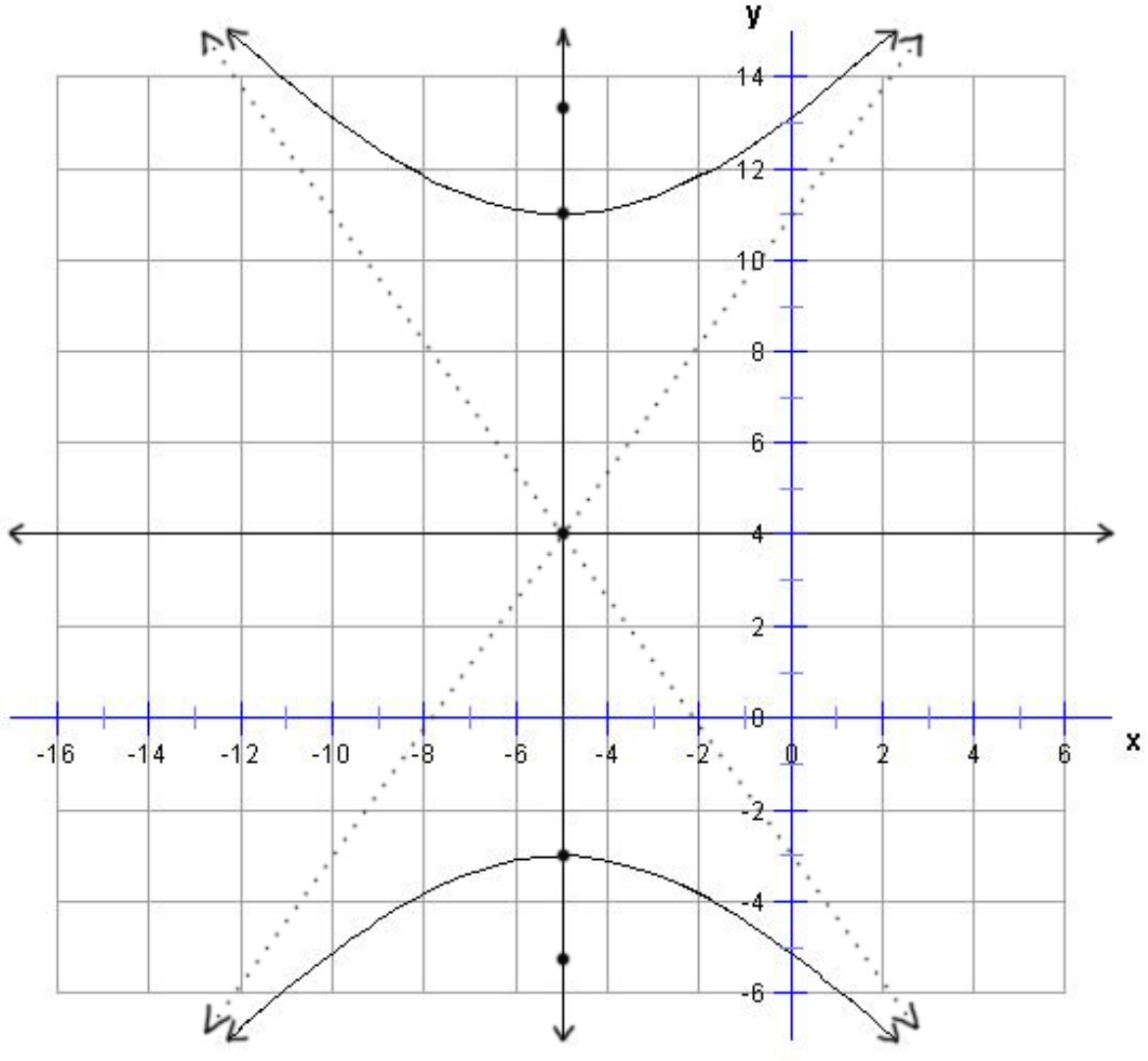
Pre-Calculus Homework #11 – Answer Key

1) Hyperbola $\frac{(y-4)^2}{49}-\frac{(x+5)^2}{36}=1$ Vertices= $(-5,11),(-5,-3)$ Center = $(-5,4)$

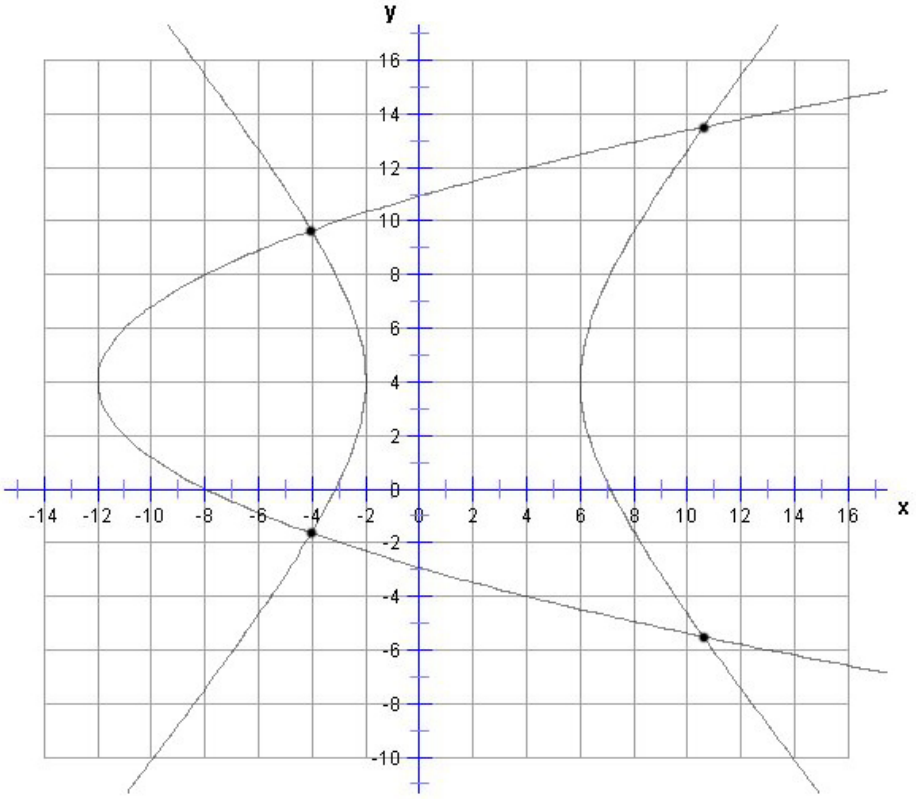
Foci = $(-5,4+\sqrt{85}),(-5,4-\sqrt{85})$ Axes of symmetry: $x=-5,\ y=4$

Asymptotes: $y=\frac{7}{6}x+\frac{59}{6}$ $y=\frac{-7}{6}x-\frac{11}{6}$



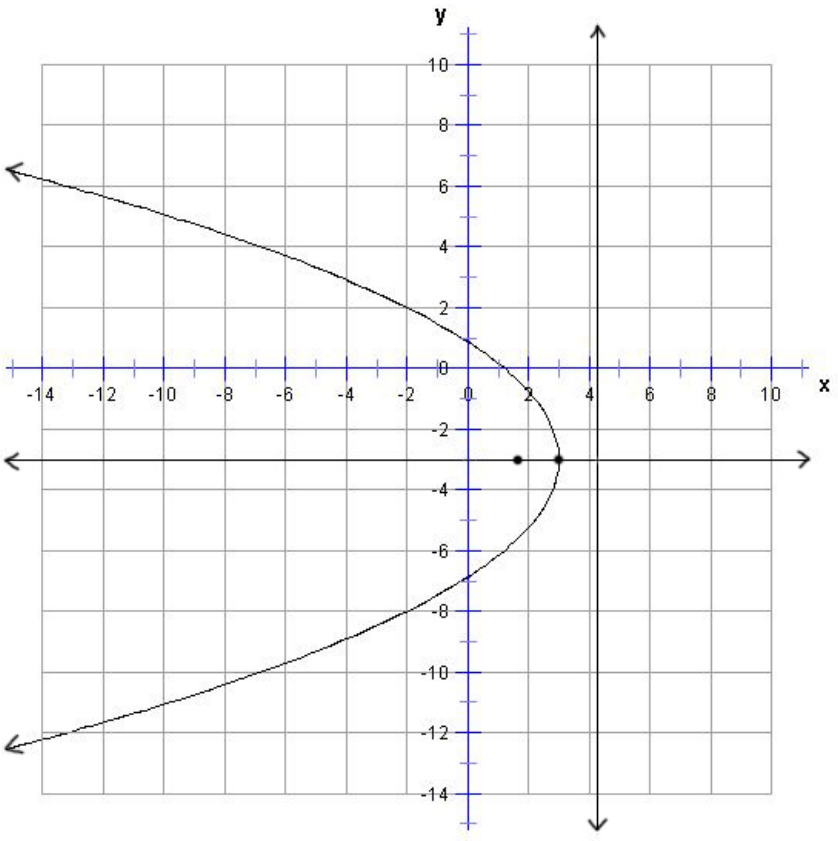
2) Hyperbola $\frac{(y-6)^2}{100}-\frac{(x-7)^2}{49}=1$

3) $x = -4.0, y = 9.6 \quad x = -4.0, y = -1.6 \quad x = 10.6, y = 13.5 \quad x = 10.6, y = -5.5$



4) Parabola $x = \frac{-1}{5}(y+3)^2 + 3$ Vertex = $(3, -3)$ Focus = $(\frac{7}{4}, -3)$

Directrix: $x = \frac{17}{4}$ Axis of symmetry: $y = -3$



5) Ellipse $\dfrac{(x-9)^2}{49}+\dfrac{(y+9)^2}{16}=1$

6) $\dfrac{7\pi}{6}$, $57^\circ 22'55.2''$, 135°, 219.765°

7) $\dfrac{-\sqrt{3}}{2}$, 1.8678, $\dfrac{-\sqrt{3}}{3}$, -1.4042

8) $\theta = 225^\circ, 315^\circ$, $\theta = 59.0362^\circ, 239.0362^\circ$, $\theta = 60^\circ, 240^\circ$, No Solutions

9) $\dfrac{29\pi}{9}$, $281^\circ 44'24''$, -510°, 328.0925°

10) $\dfrac{\sqrt{2}}{2}$, 1.0279, $\dfrac{\sqrt{3}}{3}$, 0

11) $\theta = 60^\circ, 120^\circ$, $\theta = 180^\circ$, $\theta = 120^\circ, 240^\circ$, $\theta = 120^\circ, 300^\circ$

12) $\dfrac{-169\pi}{36}$, $162^\circ 16'48''$, 100°, 58.3825°

13) -1, -9.3555, *undefined*, $-.9756$

14) $\theta = 337.9757^\circ, 202.0243^\circ$, $\theta = 120^\circ, 240^\circ$, $\theta = 300^\circ, 240^\circ$, $\theta = 90^\circ, 270^\circ$

15) $\dfrac{1\pi}{12}$, $-241^\circ 55'48''$, -390°, 746.48725°

16) $\dfrac{1}{2}$, $.0875$, $\sqrt{2}$, -1

17) $\theta = 90^\circ, 270^\circ$, No Solutions, $\theta = 150^\circ, 210^\circ$, $\theta = 90^\circ, 270^\circ$

18) -6π, $241^\circ 21'39.6''$, -690°, -174.155°

19) -1, *undefined*, $\dfrac{-1}{2}$, $\dfrac{-\sqrt{2}}{2}$

20) $\theta = 0^\circ, 180^\circ$, $\theta = 315^\circ, 225^\circ$, $\theta = 0^\circ, 180^\circ$, $\theta = 341.5651^\circ, 161.5651^\circ$