Pre-Calculus Homework #12 – Answer Key

1) $\frac{149\pi}{45}$, $316^\circ 34'12''$, -612°, 157.645°

2) Parabola $x = \frac{1}{16}(y+5)^2 - 3$

3) -1, $-.5726$, 2, 1.1463

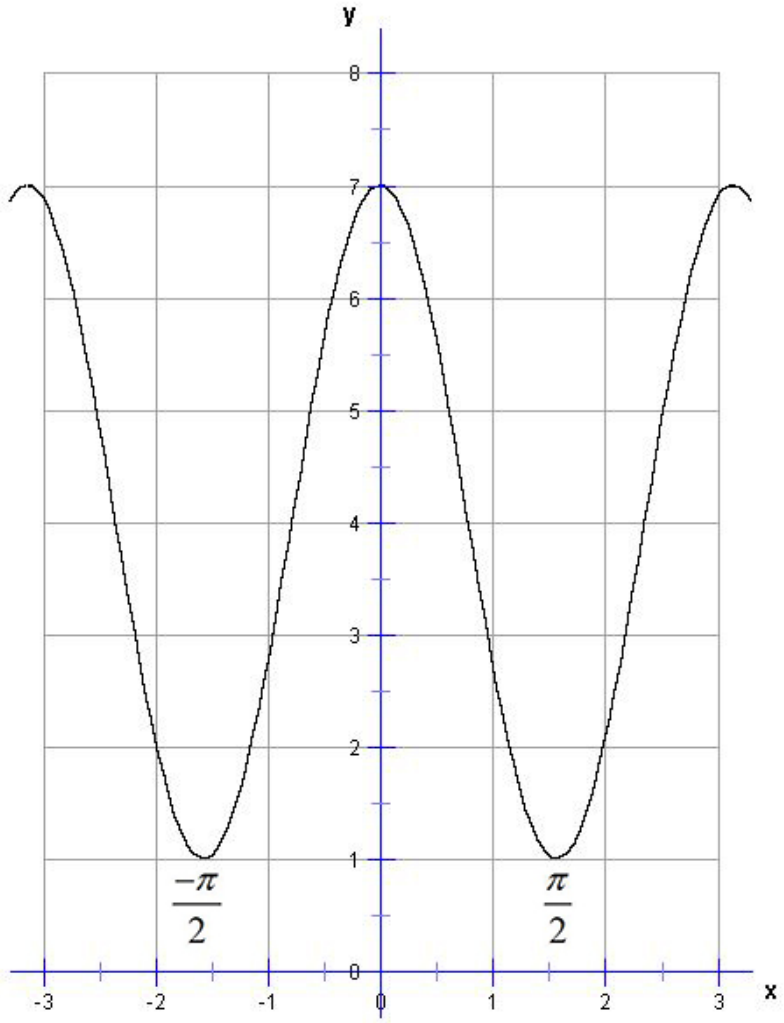
4) $(x+1)^2 + (y-1) = 145$

5) $\theta = 150^\circ, 210^\circ$, $\theta = 330^\circ, 150^\circ$, No Solutions, $\theta = 9.5941^\circ, 170.4059^\circ$

6) 5.1 miles per hour

7) 17.9 miles

8) Inverted, amplitude = 3, period = π, phase shift = $\frac{\pi}{2}$ left, vertical shift = 4 up



9) 500 revolutions per minute

10) 3.5 miles

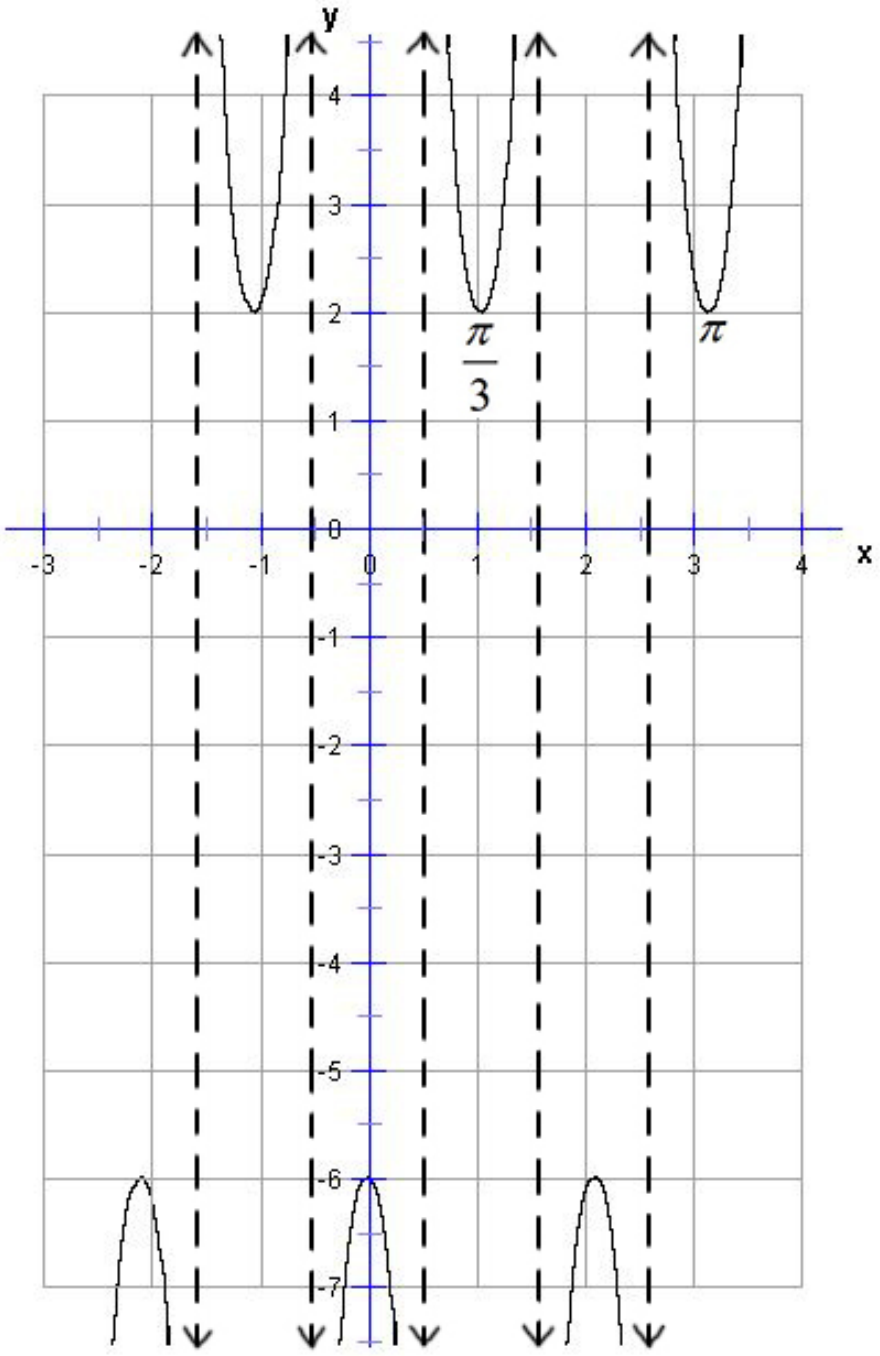
Sine, inverted, amplitude = $\frac{1}{2}$, period = π, phase shift = $\frac{\pi}{8}$ left,

11) vertical shift = 3 down, $y = \frac{-1}{2}\sin(2x + \frac{\pi}{4}) - 3$

12) 1037.5 miles per hour

13) 869.3 feet

14) Not inverted, amplitude = 4, period = $\frac{2\pi}{3}$, phase shift = $\frac{\pi}{3}$ right, vertical shift = 2 down



15) 1.9 feet

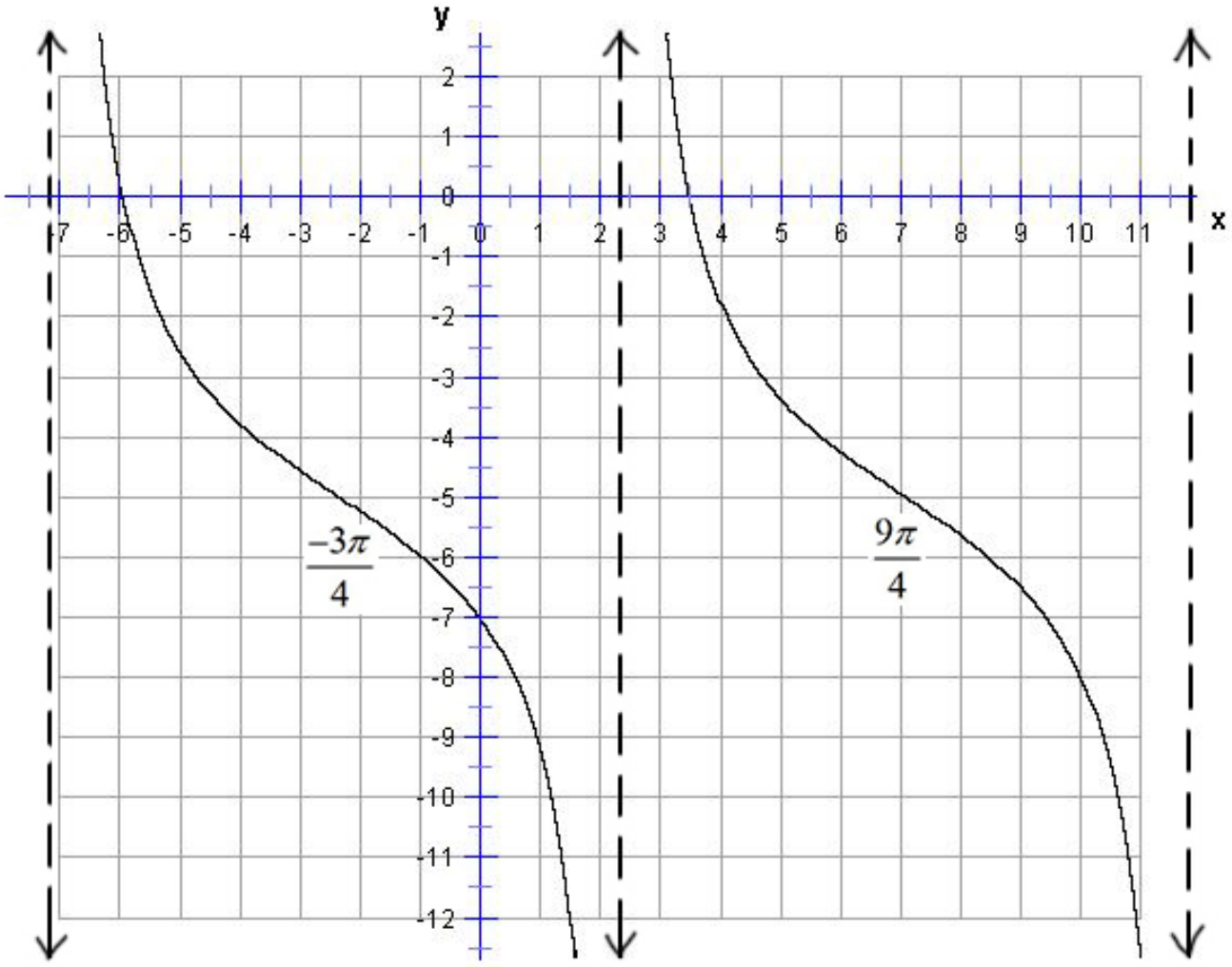
16) If cotangent: inverted, period = 2π, phase shift = $\frac{3\pi}{2}$ left, vertical shift = 3 up

If tangent: not inverted, period = 2π, phase shift = $\frac{\pi}{2}$ left, vertical shift = 3 up

$y = -\cot(\frac{1}{2}x + \frac{3\pi}{4}) + 3$ or $y = \tan(\frac{1}{2}x + \frac{\pi}{4}) + 3$

17) 1541.6 feet 1570.5 feet

18) Inverted, period = 3π, phase shift = $\frac{3\pi}{4}$ left, vertical shift = 5 down



19) 3929.8 miles

20) Inverted, amplitude = $\frac{1}{4}$, period = π, phase shift = $\frac{\pi}{6}$ left, vertical shift = 3 up

$y = \frac{-1}{4}\csc(2x + \frac{\pi}{3}) + 3$