

Math 240**Exam 2 Review****Answer Key****Draft 4**

1. a. $\frac{40\pi}{9}$ b. -207° c. $-\frac{89\pi}{18}$ d. 285°

2. a. 2.035 b. $2578^\circ 19'$ c. -2.163 d. $-1289^\circ 9'$

3. a. $-10\sqrt{2} + 6\sqrt{3}$ b. 10 c. $-9\sqrt{3} - 2\sqrt{2}$ d. $\frac{\sqrt{3}}{2}$ e. 0 f. $8\sqrt{3}$

4. a. $s = \frac{3\pi}{4}$ b. $s = \frac{7\pi}{6}$ c. $s = \frac{5\pi}{3}$

5. a. -9880 b. 1.1752 c. -.9524 d. 1.1503 e. .5768 f. -.1627

6. a. $s = 1.561$ b. $s = 1.558$ c. $s = .955$ d. $s = .851$ e. $s = .058$ f. $s = .167$

7. a. $\frac{\sqrt{3}}{2}$ b. $\frac{\sqrt{3}}{2}$ c. $-\sqrt{3}$ d. $-\sqrt{2}$ e. -1

8. a. 1500 km b. 8800 km

9. 18.7 cm

10. a. 324 ft b. 204 ft c. 2180 sq ft

11. a. $v = \frac{\pi}{3} \text{ cm/min}$; $\omega = \frac{\pi}{30} \text{ rad/min}$ b. $v = 1536\pi \text{ cm/min}$; $\omega = 64\pi \text{ rad/min}$

12. $r = 3.0 \text{ cm}$

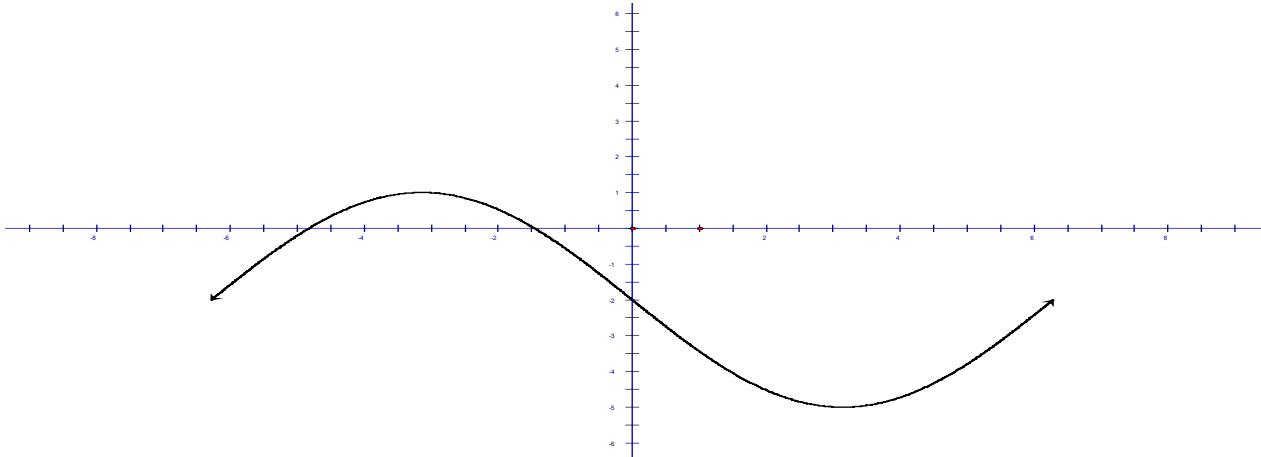
13. $\omega = \frac{275\pi}{3} \text{ radians/sec} \sim 288 \text{ radians/sec}$

14. 93.3 ft from the ground; $\omega = \frac{\pi}{36} \text{ radians/sec}$

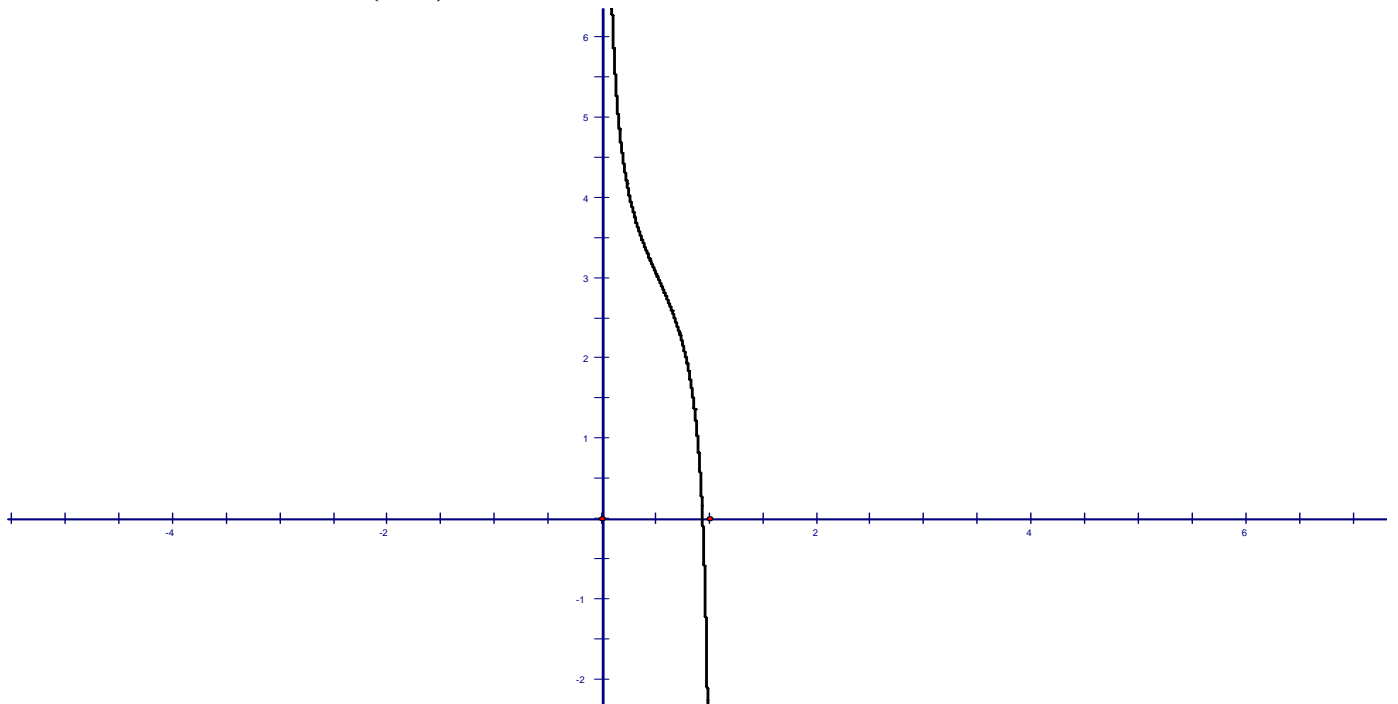
15. 3.6 radians

16. $r = 8.8 \text{ meters}$

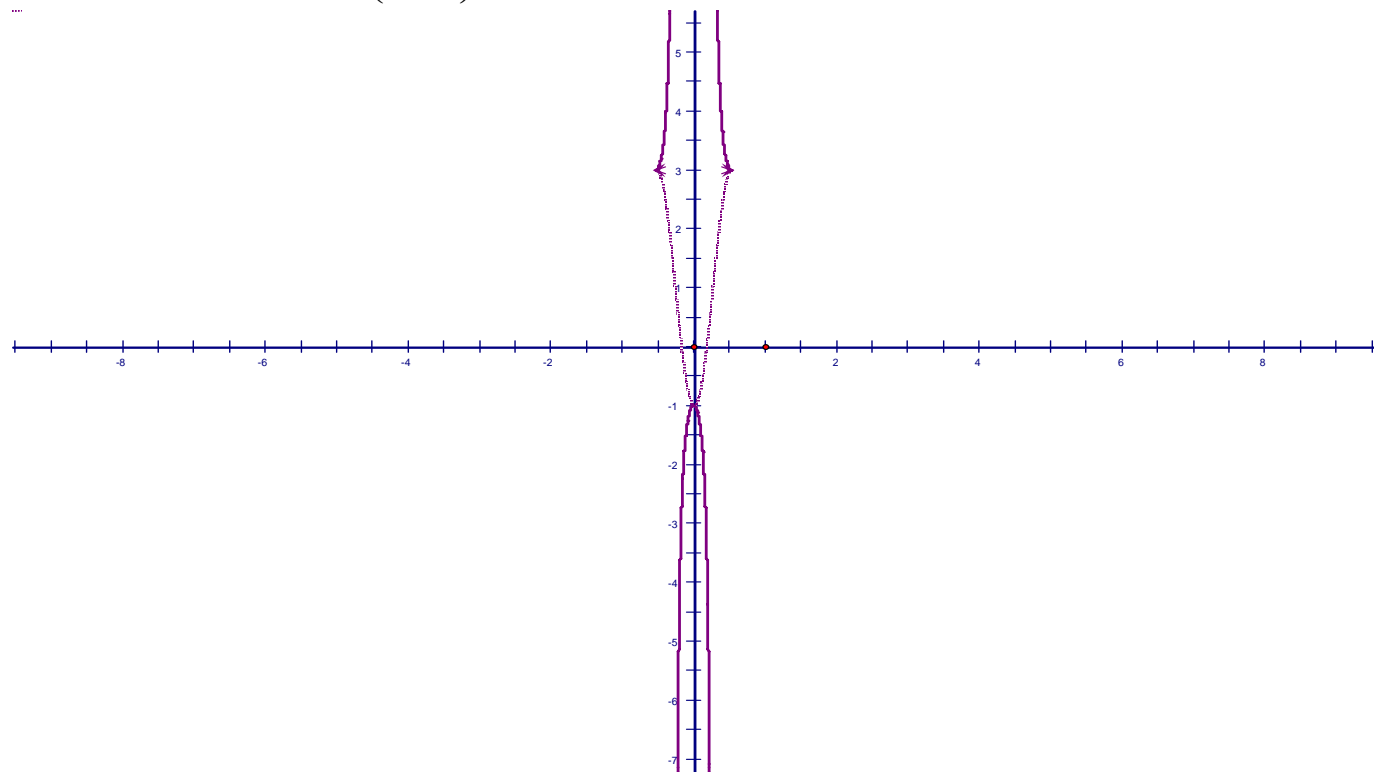
17. a. $amp = \frac{3}{4}$; period = $\frac{3\pi}{2}$; new origin $\left(\frac{\pi}{4}, -5\right)$ b. period = $\frac{\pi}{4}$; new origin $\left(-\frac{\pi}{8}, 6\right)$
 c. period = 2; new origin $\left(-\frac{3}{4}, 2\right)$ d. $amp = 2$; period = $\frac{2\pi}{3}$; new origin $\left(-\frac{\pi}{6}, 4\right)$
 e. period = 1; new origin $\left(\frac{1}{6}, -1\right)$ f. period = π ; new origin $\left(\frac{\pi}{10}, -\frac{1}{2}\right)$
18. a. $amp = 3$; period = 4π ; new origin $(-2\pi, -2)$



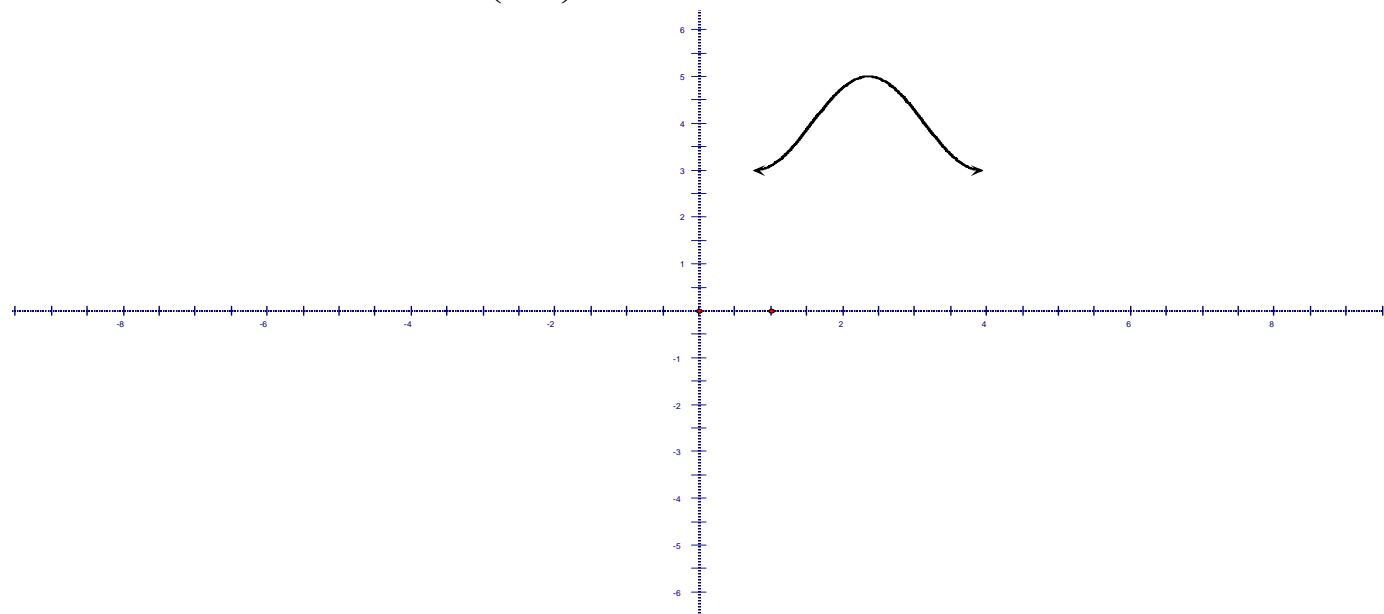
- b. period = $\frac{\pi}{3}$; new origin $\left(\frac{\pi}{6}, 3\right)$



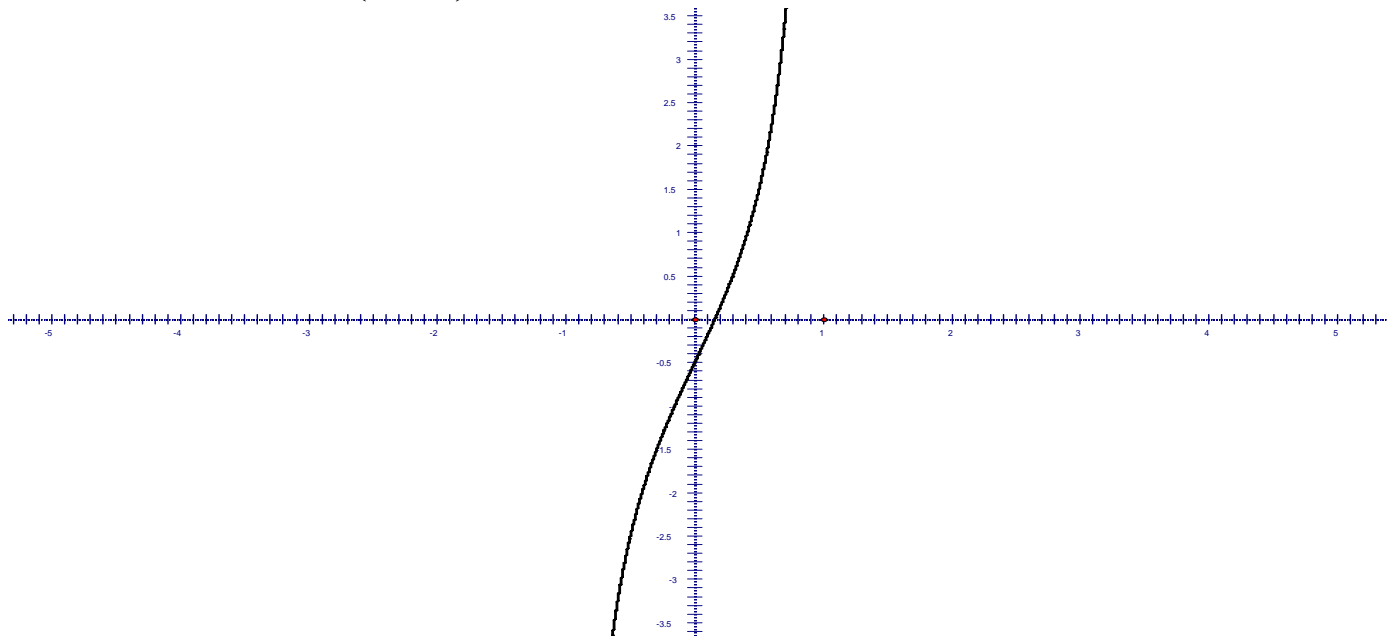
c. period = $\frac{\pi}{3}$; new origin $\left(-\frac{\pi}{6}, 1\right)$



d. amp = 1; period = π ; new origin $\left(\frac{\pi}{4}, 4\right)$



e. period = 2; new origin $\left(-1, -\frac{1}{2}\right)$



f. period = 6; new origin $\left(\frac{3}{2}, -3\right)$

