

## Chapter 6 Review Extra Practice Answers

1. a)  $165^\circ$   
 b)  $4239.89^\circ$   
 c)  $56\,520^\circ$   
 d)  $102.86^\circ$   
 e)  $189^\circ$   
 f)  $8.18^\circ$
2. a)  $\cot \frac{\pi}{6}$   
 b)  $\cos \frac{\pi}{6}$   
 c)  $\tan \frac{3\pi}{2}$   
 d)  $\sin \frac{3\pi}{4}$   
 e)  $\sec \frac{\pi}{3}$   
 f)  $\csc \frac{5\pi}{4}$
3. a) a reflection in the  $x$ -axis, a vertical compression by a factor of  $\frac{8}{21}$ , a horizontal stretch by a factor of  $\frac{5}{3}$ , a horizontal translation of 9 units to the right, and a vertical translation of 14 units up  
 b) a vertical stretch by a factor of 77, a reflection in the  $y$ -axis, a horizontal translation of  $\frac{1}{8}$  units to the left, and a vertical translation of 22 units down  
 c) a vertical stretch by a factor of 16, a horizontal stretch by a factor of  $\frac{15}{7}$ , a horizontal translation of 5 units to the right, and a vertical translation of 3 units up  
 d) a vertical compression by a factor of  $\frac{2}{13}$ , a horizontal compression by a factor of  $\frac{1}{8}$ , a horizontal translation of 7 units to the left, and a vertical translation of 17 units down
4. Minute hand:  $D(t) = 13 \sin \left( 2\pi \left( t + \frac{1}{4} \right) \right) + 450$ ;  
 Second hand:  $D(t) = 13 \sin \left( 120\pi \left( t + \frac{1}{240} \right) \right) + 450$ ;  
 Hour hand:  $D(t) = -6 \sin \left( \frac{\pi}{6} t \right) + 450$
5. a) Answers may vary. For example, two points are  $\left( \frac{5}{144}, -\frac{9}{20} \right)$  and  $\left( \frac{7}{144}, \frac{1}{2} \right)$ .  
 b) Answers may vary. For example, two points are  $\left( 16\pi, -\frac{97}{2} \right)$  and  $\left( 20\pi, -\frac{27}{2} \right)$ .  
 c) Answers may vary. For example, two points are  $\left( \frac{\pi}{120}, \frac{5}{72} \right)$  and  $\left( \frac{11\pi}{120}, \frac{1}{24} \right)$ .  
 d) Answers may vary. For example, two points are  $\left( \frac{40}{27}, -91 \right)$  and  $\left( \frac{50}{27}, -33 \right)$ .  
 e) Answers may vary. For example, two points are  $\left( \frac{100\pi}{3}, -\frac{99}{2} \right)$  and  $\left( \frac{200\pi}{3}, -\frac{97}{2} \right)$ .  
 f) Answers may vary. For example, two points are  $\left( \frac{1}{360}, \frac{5}{16} \right)$  and  $\left( \frac{11}{360}, -\frac{1}{16} \right)$ .
6. a) 0.40  
 b) 2.88  
 c) 2.70  
 d) 0.35  
 e)  $-1.87$   
 f) 2.07