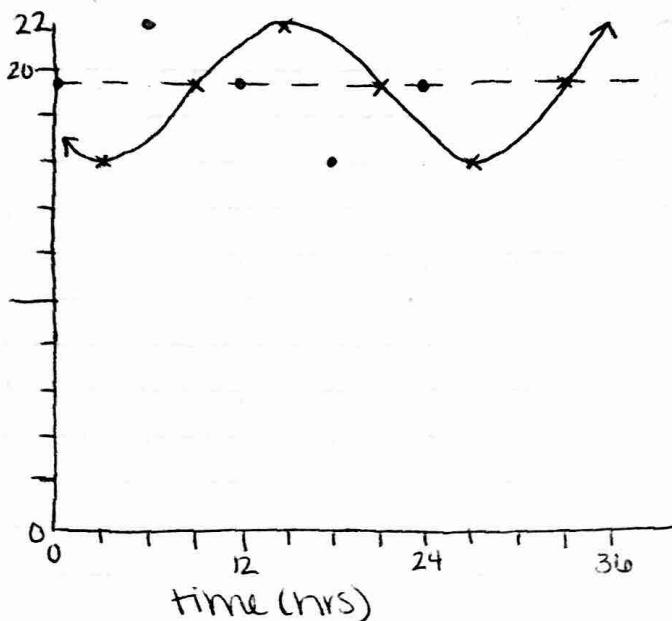
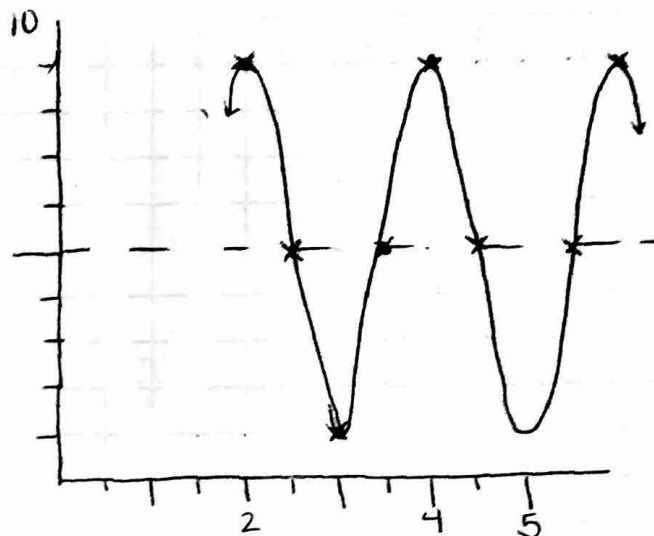


HW 141

1. a) $a=3, b=\pi/12 \rightarrow \frac{2\pi}{\pi/12} = 24$
 K.P. = $24/4 = 6$
 R9, U19



3. a) $a=4, b=\pi \rightarrow \frac{2\pi}{\pi} = 2$ K.P. = $2/4 = 1/2$
 R2, U5



- b) 9 ft at 2 sec.
- c) 1 ft at 3 sec.
- d) 1 second

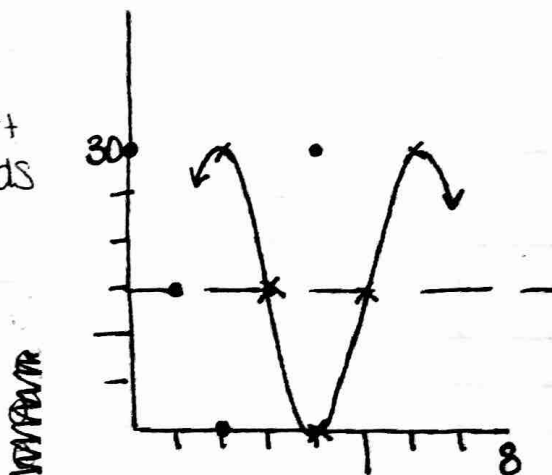
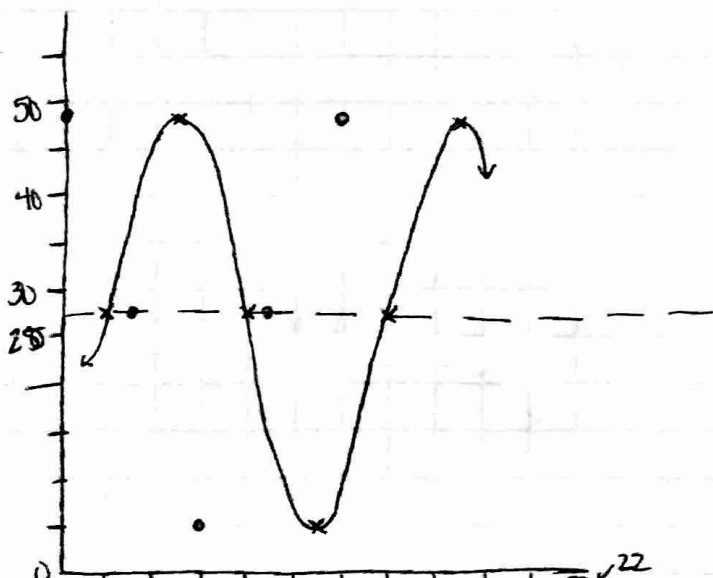
b) 16°C every 6 hrs beginning with 3 AM

- c) 19°C
- d) 3 PM

4. a) $a=15, b=\pi/12 \rightarrow \frac{2\pi}{\pi/12} = 24$ K.P. = $24/4 = 6$
 R2, U15

2. a) $a=22, b=\pi/6 \rightarrow \frac{2\pi}{\pi/6} = 12$
 K.P. = $12/4 = 3$
 R5, U27

- b) Low: 5ft High: 49ft
- c) 24 seconds



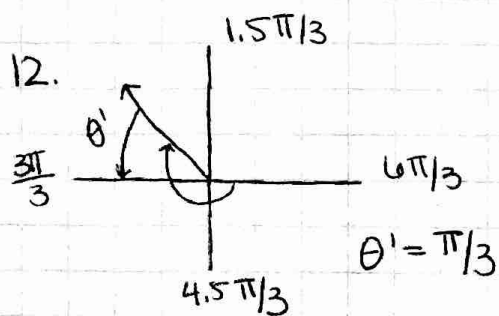
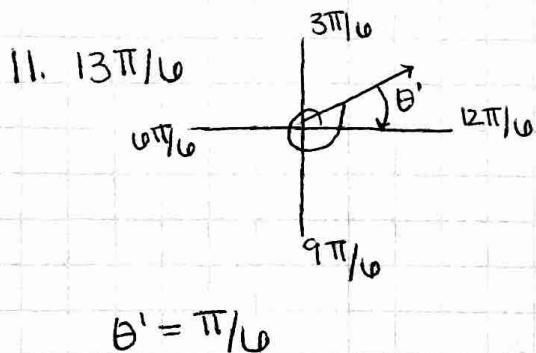
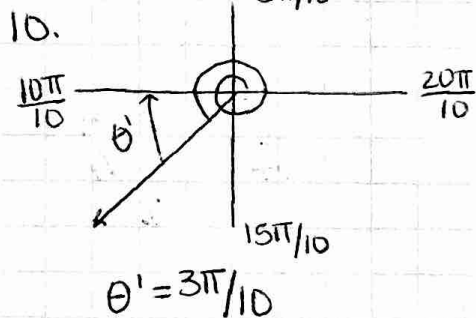
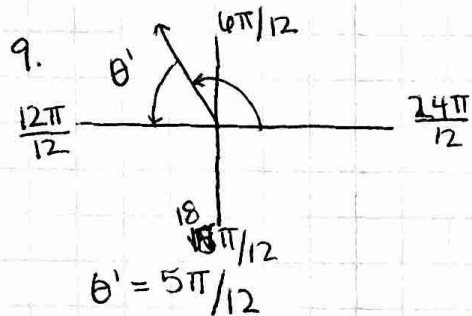
- a) 30 cm
- b) 2 sec.
- c) 4 sec.
- d) 10 sec.

$$5. \frac{5\pi}{30} \left(\frac{180}{\pi} \right) = 25^\circ$$

$$6. 280^\circ \left(\frac{\pi}{180^\circ} \right) = \frac{28\pi}{18} = \frac{14\pi}{9}$$

$$7. -\frac{13\pi}{6} \left(\frac{180^\circ}{\pi} \right) = -390^\circ$$

$$8. -190^\circ \left(\frac{\pi}{180} \right) = -\frac{19\pi}{18}$$



$$13. -\sqrt{2}/2$$

$$14. \sqrt{3}/2$$

$$15. 1/2$$

$$16. -\sqrt{3}/2$$

$$17. -1$$

$$18. -1$$

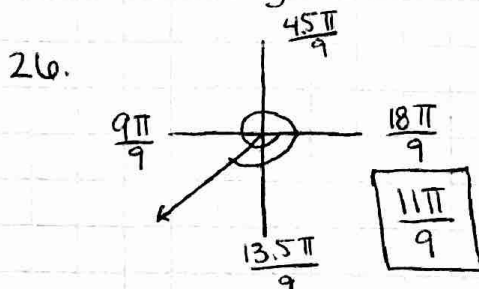
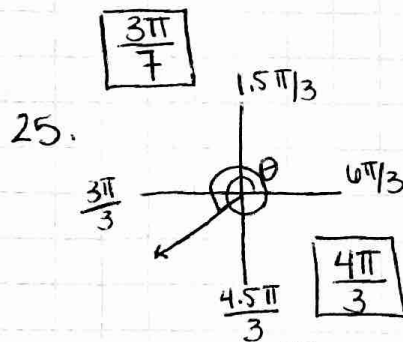
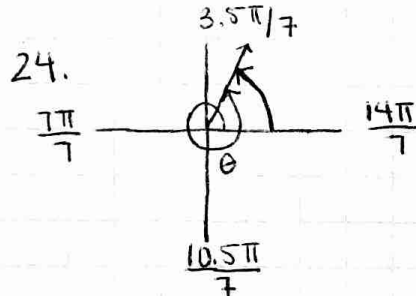
$$19. \theta = 4\pi/3 \text{ \& } 5\pi/3$$

$$20. \theta = \pi$$

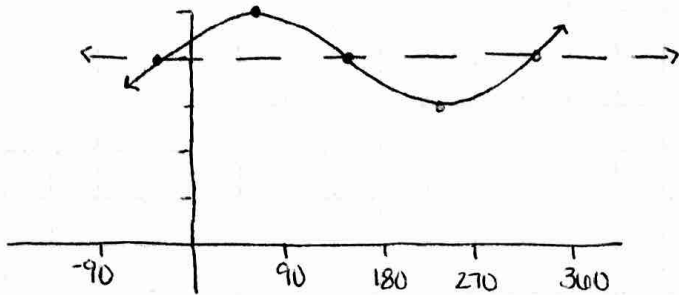
$$21. \theta = 3\pi/2$$

$$22. \theta = 7\pi/6 \text{ \& } 11\pi/6$$

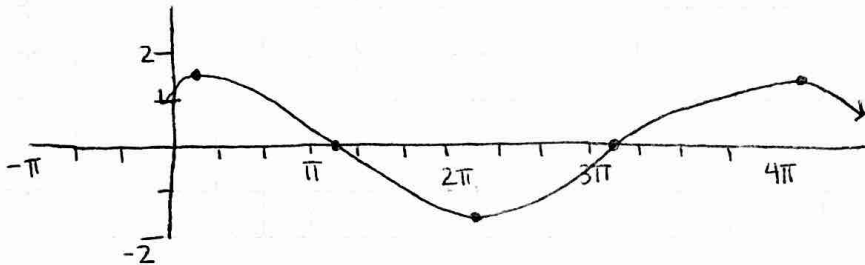
$$23. \theta = \pi/4 \text{ \& } 7\pi/4$$



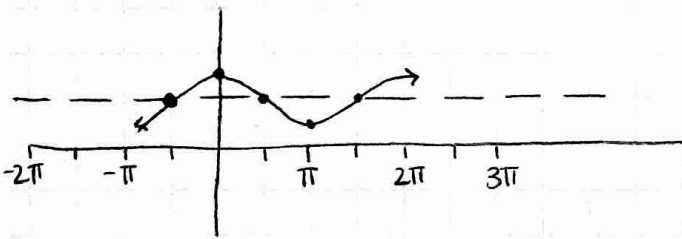
27. $f(x) = \sin(x+30^\circ) + 4$
 $L 30^\circ$ $U 4$ period: 360 k.p.: 90



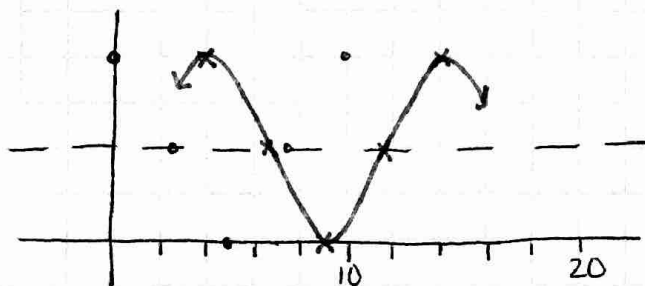
28. $f(x) = \frac{3}{2} \cos(\frac{1}{2}(x - \frac{\pi}{6}))$
 $a = \frac{3}{2}$ $b = \frac{1}{2} \rightarrow \frac{2\pi}{\frac{1}{2}} = 4\pi$
 $R \frac{\pi}{6}$ k.p. = $4\pi/4 = \pi$



29. $f(x) = \frac{1}{2} \sin(x + \frac{\pi}{2}) + 1$
 $a = \frac{1}{2}$ $L \frac{\pi}{2}$ $U 1$ period = 2π
k.p. = $\frac{\pi}{2}$



30. $f(x) = 2 \cos(\frac{\pi}{5}(x-2)) + 2$
 $a = 2$ $b = \frac{\pi}{5} \rightarrow \frac{2\pi}{\frac{\pi}{5}} = 10$ k.p. = 2.5
 $R 2, U 2$



31. midline: $U 1$
 $a = 1$
period = $2\pi \rightarrow b = 1$
 $\frac{2\pi}{1} = \frac{2\pi}{b}$

$y = \sin(x + \frac{\pi}{4}) + 1$
 $y = \cos(x - \frac{\pi}{4}) + 1$

32. $a = 2$ midline: 0
period = $2 \rightarrow \frac{2\pi}{b} = \frac{2}{1}$
 $2b = 2\pi$
 $b = \pi$

$y = 2 \sin(\pi x)$
 $y = 2 \cos(\pi(x - \frac{1}{2}))$

33. $a = 3$, midline: $D 2$
period = $\frac{5\pi}{3}$

$\frac{4\pi}{3} = \frac{2\pi}{b}$
 $6\pi = 4\pi b$
 $6/4 = b$
 $3/2 = b$

$y = 3 \sin(\frac{3}{2}(x)) - 2$
 $y = 3 \cos(\frac{3}{2}(x - \frac{\pi}{3})) - 2$

34. $a = 4$, midline: $U 1$
period = $12 \rightarrow \frac{12}{1} = \frac{2\pi}{b}$
 $12b = 2\pi$
 $b = \frac{\pi}{6}$

$y = 4 \sin(\frac{\pi}{6}(x-1)) + 1$
 $y = 4 \cos(\frac{\pi}{6}(x-4)) + 1$