Lesson 6.5 Extra Practice Answers

1. a) $f(x) = \sin x$ has been moved 12 units down;
$D = \{x \in \mathbf{R}\}$; $R = y \in \mathbf{R} \mid -13 \leq y \leq -11\}$

b) $f(x) = \sin x$ has been moved 75° to the left;
$D = \{x \in \mathbf{R}\}$; $R = \{y \in \mathbf{R} \mid -1 \leq y \leq 1\}$

c) $f(x) = \sin x$ has been moved 3.5 units up;
$D = \{x \in \mathbf{R}\}$; $R = \{y \in \mathbf{R} \mid 2.5 \leq y \leq 4.5\}$

d) $f(x) = \sin x$ has been moved 125° to the right;
$D = \{x \in \mathbf{R}\}$; $R = \{y \in \mathbf{R} \mid -1 \leq y \leq 1\}$

e) $f(x) = \sin x$ has been moved 17 units down and 10° to the left; $D = \{x \in \mathbf{R}\}$;
$R = \{y \in \mathbf{R} \mid -18 \leq y \leq -16\}$

f) $f(x) = \sin x$ has been moved 6 units up and 95° to the right; $D = \{x \in \mathbf{R}\}$;
$R = \{y \in \mathbf{R} \mid 5 \leq y \leq 7\}$

g) $f(x) = \sin x$ has been moved 1.5 units up and 21° to the right; $D = \{x \in \mathbf{R}\}$;
$R = \{y \in \mathbf{R} \mid 0.5 \leq y \leq 2.5\}$

2. a) $f(x) = \sin x + 10.5$
b) $f(x) = \sin(x + 88°)$
c) $f(x) = \sin x - 30$
d) $f(x) = \sin(x - 103°)$
e) $f(x) = \sin(x + 79°) + 2$
f) $f(x) = \sin(x - 23°) - 39$
g) $f(x) = \sin(x + 11°) + 11$

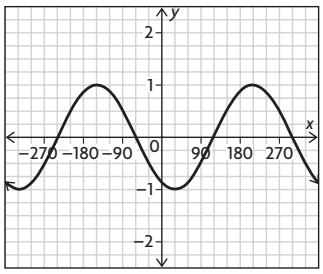
3. a) $f(x) = \sin x - 18$; $D = \{x \in \mathbf{R}\}$;
$R = \{y \in \mathbf{R} \mid -19 \leq y \leq -17\}$

b) $f(x) = \sin(x - 90°)$; $D = \{x \in \mathbf{R}\}$;
$R = \{y \in \mathbf{R} \mid -1 \leq y \leq 1\}$

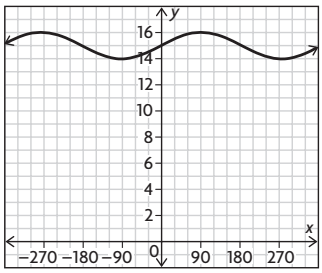
c) $f(x) = \sin x + 24$; $D = \{x \in \mathbf{R}\}$;
$R = \{y \in \mathbf{R} \mid 23 \leq y \leq 25\}$

d) $f(x) = \sin(x + 30°)$; $D = \{x \in \mathbf{R}\}$;
$R = \{y \in \mathbf{R} \mid -1 \leq y \leq 1\}$

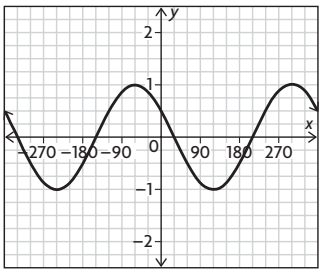
4. a)



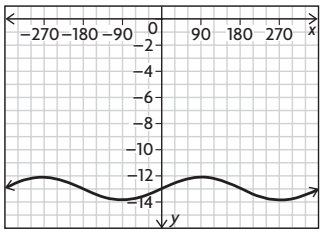
b)



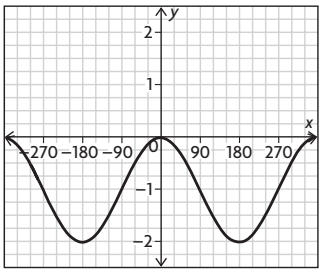
c)



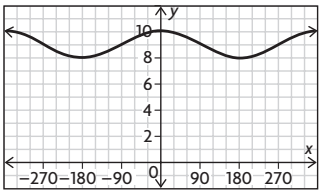
d)



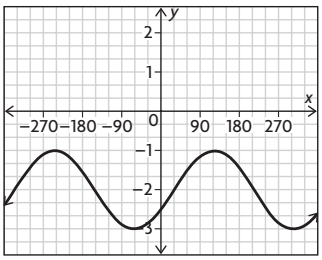
e)



f)



g)



5. a) $f(x) = \sin x + 45$
b) $f(x) = \sin x - 24$
c) $f(x) = \sin x + 28$
d) $f(x) = \sin x - 13.5$

6. $f(x) = \sin(x - 50°)$