Lesson 6.5 Extra Practice

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1. For each function, determine the translations that have been applied to $f(x) = \sin x$. Then state the domain and range of the function.

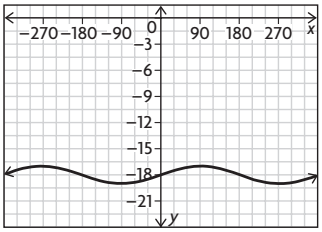
a) $f(x) = \sin x - 12$
b) $f(x) = \sin(x + 75°)$
c) $f(x) = \sin x + 3.5$
d) $f(x) = \sin(x - 125°)$
e) $f(x) = \sin(x + 10°) - 17$
f) $f(x) = \sin(x - 95°) + 6$
g) $f(x) = \sin(x - 21°) + 1.5$

2. Determine the correct function for each of the following transformations.

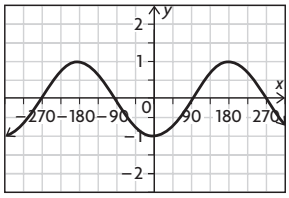
a) The function $f(x) = \sin x$ has been moved 10.5 units up.
b) The function $f(x) = \sin x$ has been moved 88° to the left.
c) The function $f(x) = \sin x$ has been moved 30 units down.
d) The function $f(x) = \sin x$ has been moved 103° to the right.
e) The function $f(x) = \sin x$ has been moved 2 units up and 79° to the left.
f) The function $f(x) = \sin x$ has been moved 39 units down and 23° to the right.
g) The function $f(x) = \sin x$ has been moved 11 units up and 11° to the left.

3. Determine the correct function for each of the following transformations of $f(x) = \sin x$. Then state the domain and range of the function.

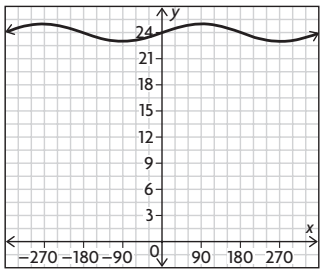
a)



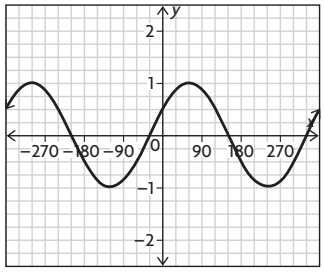
b)



c)



d)



4. Sketch each of the following sinusoidal functions.

a) $f(x) = \sin(x - 120°)$
b) $f(x) = \sin x + 15$
c) $f(x) = \sin(x + 150°)$
d) $f(x) = \sin x - 13$
e) $f(x) = \sin(x + 90°) - 1$
f) $f(x) = \sin(x - 270°) + 9$
g) $f(x) = \sin(x - 30°) - 2$

5. For each of the following functions, a vertical translation has been applied to $f(x) = \sin x$. Determine each function.

a) This function has a domain of $\{x \in \mathbf{R}\}$ and a range of $\{y \in \mathbf{R} \mid 44 \leq y \leq 46\}$
b) This function has a domain of $\{x \in \mathbf{R}\}$ and a range of $\{y \in \mathbf{R} \mid -25 \leq y \leq -23\}$
c) This function has a domain of $\{x \in \mathbf{R}\}$ and a range of $\{y \in \mathbf{R} \mid 27 \leq y \leq 29\}$
d) This function has a domain of $\{x \in \mathbf{R}\}$ and a range of $\{y \in \mathbf{R} \mid -14.5 \leq y \leq -12.5\}$

6. A horizontal translation has been applied to $f(x) = \sin x$ to produce the following table of values. Determine the function.

x	140°	230°	320°	410°
y	1	0	−1	0