

Lesson 6.6 Extra Practice

STUDENT BOOK PAGES 368–376

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) $f(x) = 28 \sin x$

b) $f(x) = -\frac{3}{22} \sin x$

c) $f(x) = -21.5 \sin x$

d) $f(x) = \frac{1}{18} \sin x$

e) $f(x) = 33 \sin x$

f) $f(x) = -\frac{9}{8} \sin x$

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

- a) The function $f(x) = \sin x$ has been vertically compressed by a factor of $\frac{7}{8}$ and reflected across the x -axis.

- b) The function $f(x) = \sin x$ has been vertically stretched by a factor of 23.5.

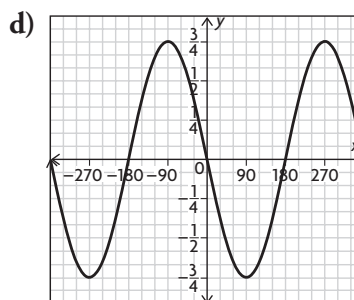
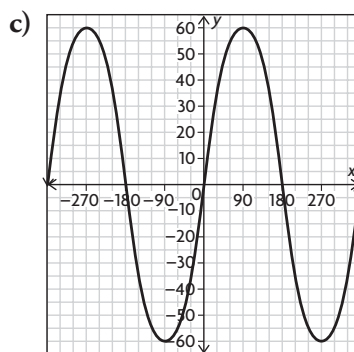
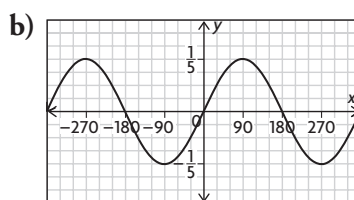
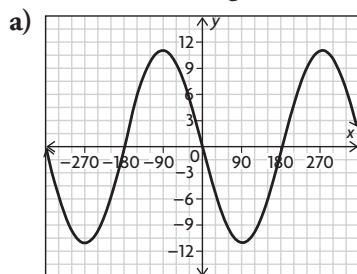
- c) The function $f(x) = \sin x$ has been vertically compressed by a factor of $\frac{2}{3}$.

- d) The function $f(x) = \sin x$ has been vertically stretched by a factor of 26 and reflected across the x -axis.

- e) The function $f(x) = \sin x$ has been vertically compressed by a factor of $\frac{10}{11}$ and reflected across the x -axis.

- f) The function $f(x) = \sin x$ has been vertically stretched by a factor of 60.

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.



4. State the amplitude, period, equation of the axis, domain, and range of each of the following functions.

a) $f(x) = 20 \sin(x - 89^\circ) - 3$

b) $f(x) = -\frac{17}{21} \sin(x + 14^\circ) + 1$

c) $f(x) = -23 \sin(x - 58^\circ) - 7$

d) $f(x) = \frac{1}{25} \sin(x + 71^\circ) - 2$

e) $f(x) = -4 \sin(x - 5.5^\circ) - 75$

f) $f(x) = \frac{49}{50} \sin(x + 100^\circ) + 4$

5. Determine whether or not the following transformations have been applied in the correct order.

- a) The function $f(x) = \sin x$ has been moved 16.5° to the right, vertically stretched by a factor of 99, and moved 5 units up.

- b) The function $f(x) = \sin x$ has been moved 70 units down and vertically stretched by a factor of 18.5.

- c) The function $f(x) = \sin x$ has been moved 1° to the left and 9 units up.