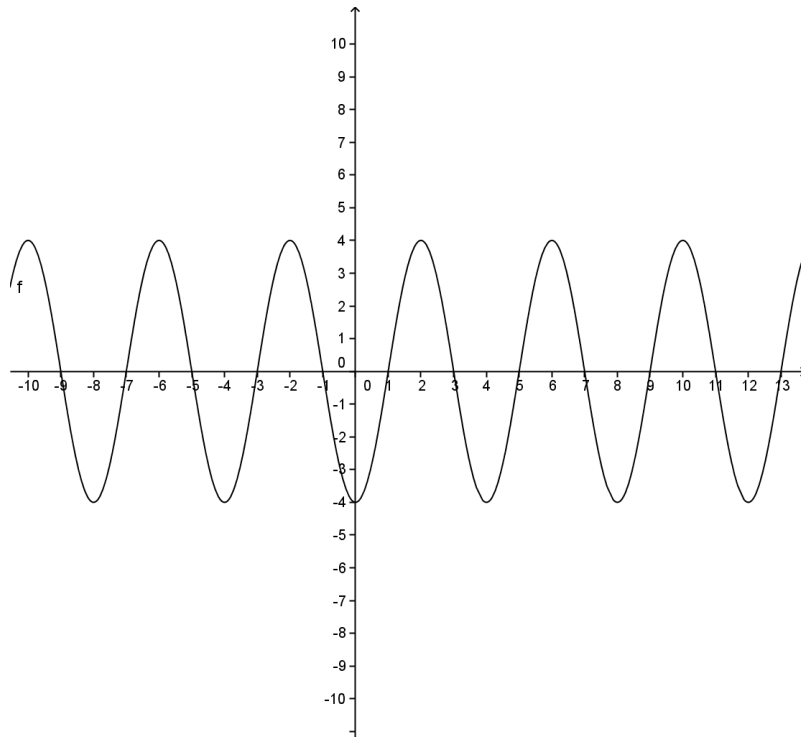


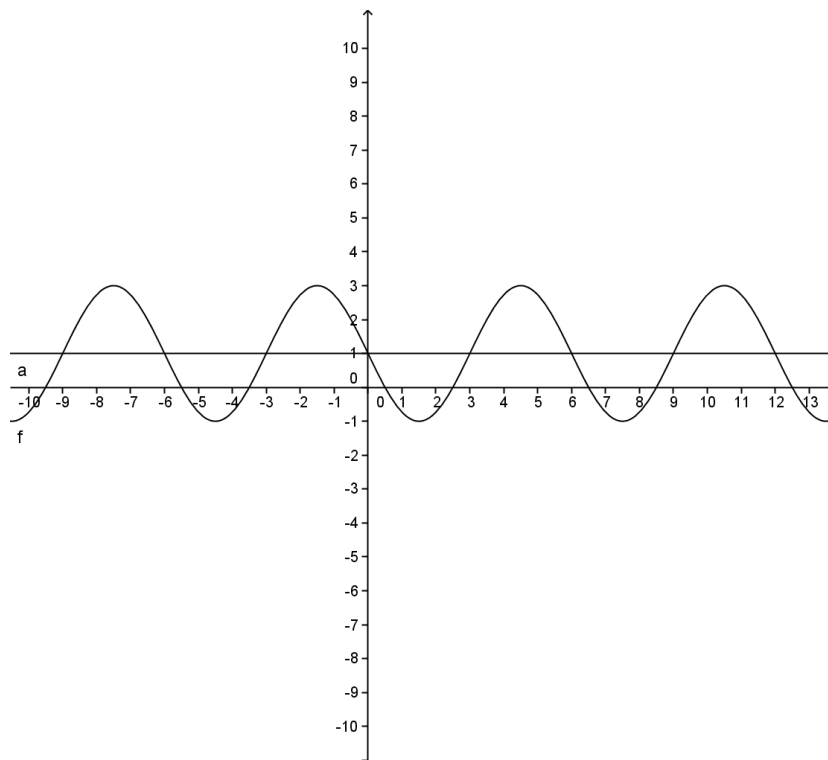
Work Sheet: Transformations of the sine and cosine function

- 1) The diagrams below show functions whose form is:
 $f(x) = a \sin(b(x - c)) + d$ and $f(x) = a \cos(b(x - c)) + d$.
State for each graph a correct transformation of the sine and cosine function.

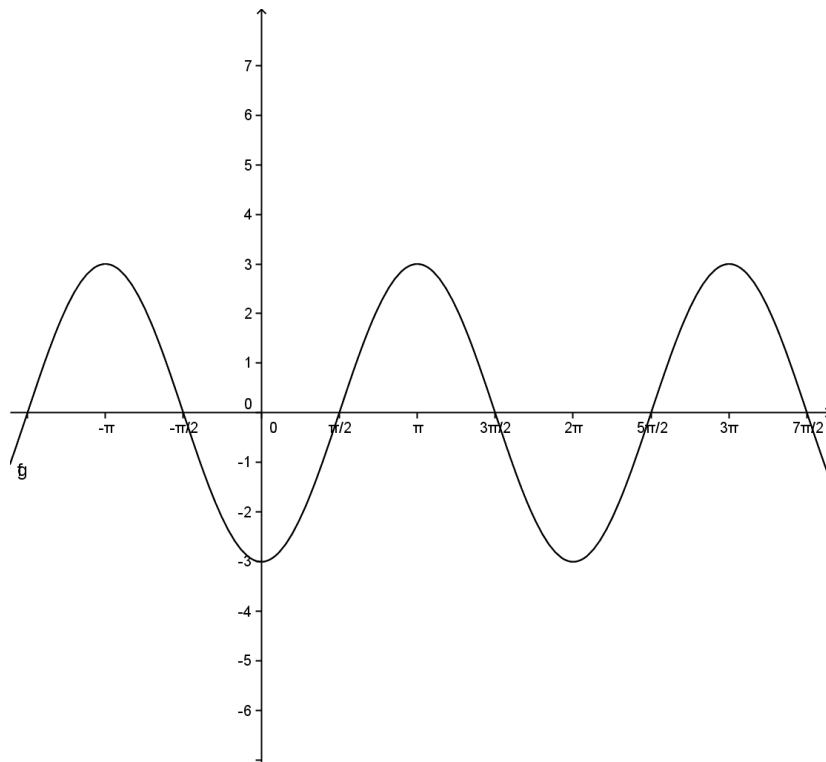
a)



b)



c)



- 2) Sketch the graphs of the functions $f(x) = \cos(x)$ and $g(x) = \frac{1}{2}$ into one system of coordinates and work out all the points of intersection.
- 3) Sketch the graphs of the functions $f(x) = \sin(x)$ and $g(x) = \frac{2}{3}$ into one system of coordinates and work out all the points of intersection.
- 4) Sketch the following functions.
 - a) $f(x) = -3\sin\left(\frac{\pi}{4}(x + 2)\right)$
 - What is the geometric meaning of $f(4)$?
 - Work it out algebraically.
 - b) $f(x) = 1.5\sin(\pi(x + 2)) + 3$
 - What is the geometric meaning of $f(x) = 4$?
 - Work it out algebraically.