



Questions

Domain & Range of a Function

Composite Functions

Inverse Functions

Graph Transformations

Domain & Range of a Function

Q1) State any restrictions on the domain of the following functions.

a) $f(x) = \frac{2}{x-6}$

d) $g(x) = \frac{3}{\sqrt{8-x}}$

b) $f(x) = \frac{1}{9+x}$

e) $g(x) = \frac{3}{(x+2)(x-6)}$

c) $f(x) = \sqrt{12-x}$

f) $f(x) = \frac{\sqrt{x}}{x^2-3x+2}$

Q2) State the domain of the following functions.

a) $f(x) = \sqrt{x^2 - 2x - 15}$

c) $f(x) = \frac{6x}{x^2 + 6x - 16}$

b) $g(x) = \frac{x+2}{x^2 - 7x + 12}$

d) $h(x) = \frac{4}{3x - 2x^2}$

Composite Functions

Q1) Find an expression for $f(g(x))$ given that $f(x) = x - 2$, $g(x) = 4x - 4$

Q2) Find an expression for $f(g(x))$ given that $f(x) = x^2 - 1$, $g(x) = 3x - 2$

Q3) Find an expression for $f(g(x))$ given that $f(x) = 3x + 4$, $g(x) = x^2$

Q4) Find an expression for $f(g(x))$ given that $f(x) = 1 - 3x^2$, $g(x) = x + 1$

Q5) Find an expression for $f(g(x))$ given $f(x) = 2x^2 - 4x + 5$, $g(x) = 3 - x$



Q6) Find an expression for $f(g(x))$ given that $f(x) = x^2 + 1$, $g(x) = 3x - 4$

Inverse Functions

Q1) What is the inverse of the function $f(x) = 6x - 2$?

Q2) What is the inverse of the function $g(x) = 5 - 3x$?

Q3) What is the inverse of the function $h(x) = \frac{1}{4}(x + 3)$?

Q4) What is the inverse of the function $f(x) = \frac{1}{4}(x^2 - 1)$?

Q5) What is the inverse of the function $h(x) = 4x^3 - 5$?

Q6) What is the inverse of the function $g(x) = \frac{\sqrt{2x+14}}{2}$?

Graph Transformations

Q1) Sketch the graph of the transformation function given that $f(x) = x^2$.

a) $y = 2f(x)$

c) $y = -f(x) + 1$

b) $y = f(x) - 3$

d) $y = f(3x)$

Q2) Sketch the graph of the transformation function given that $f(x) = x^3$.

a) $y = 2f(x)$

c) $y = -f(x) + 1$

b) $y = f(x) - 3$

d) $y = f(3x)$

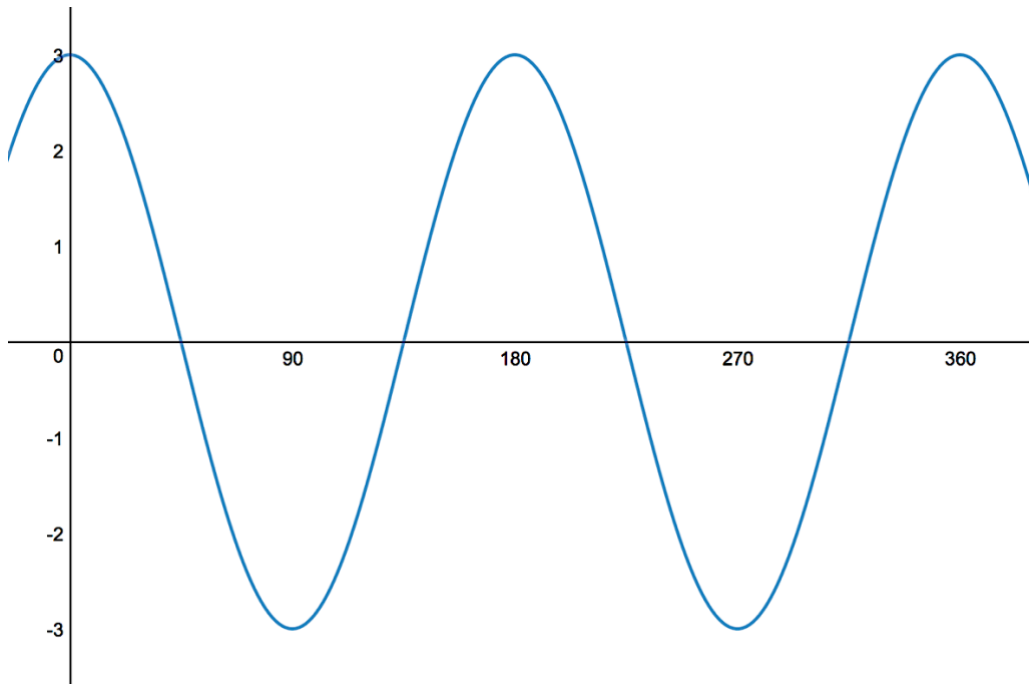
Q3) Sketch the graph of $y = 2 \sin 2x$ for $0 \leq x \leq 2\pi$.

Q4) Sketch the graph of $y = -\cos(x - 30)^\circ$ for $0 \leq x \leq 360^\circ$.

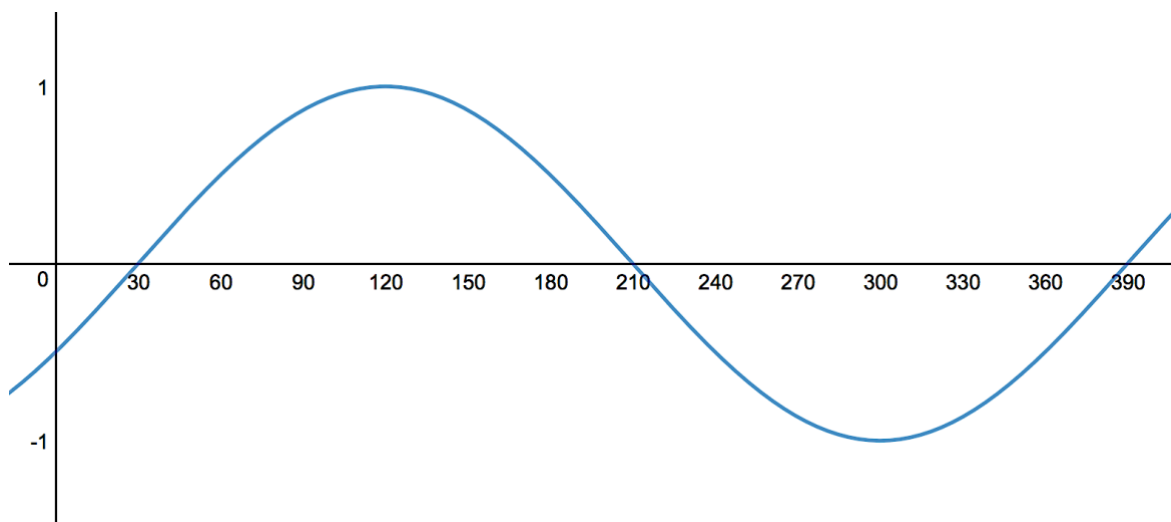
Q5) Sketch the graph of $y = 3 \sin x - 2$ for $0 \leq x \leq 360^\circ$.



Q6) The graph of $y = a \cos bx$ is shown, what are the values of a and b ?

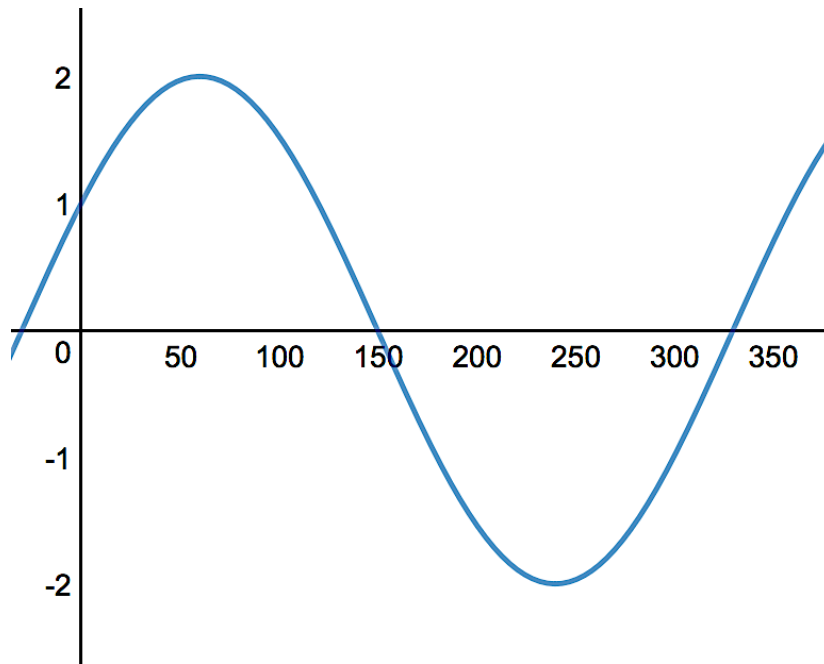


Q7) The graph of $y = \sin(x - a)$ is shown, what is the value of a ?





Q8) The graph of $y = a \cos(x - b)$ is shown, what are the values of a and b ?



Q9) The graph of $y = a \sin x + b$ is shown, what are the values of a and b ?

