Year 11 Mathematics Advanced

Topic: Graph Transformations (2 of 2)
Review Questions: Mixed one-off exam questions
Term 3, 2026

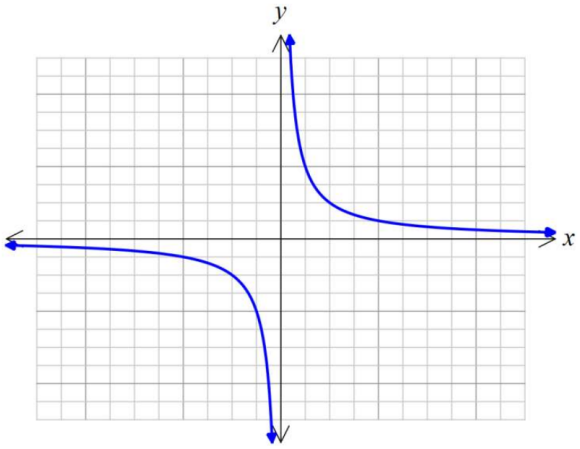
How to use this set

These are real past-paper questions on graph transformations that do not fit any one recurring pattern: genuine one-offs. They are here so you also meet the rarer, less predictable exam questions. Work through them once you are solid on the patterns in the main review docs. Every question you get wrong or struggle with goes in your **Mistakes Log**.

Mixed one-off exam questions

Q1 Hornsby Girls 2022 Prelim Q9 · **1 mark**

The graph of $f(x) = \dfrac{1}{x}$ is shown. What are the domain and range of the function $g(x) = 2f(x) + 1$?



(A) Domain: real x, $x \neq 0$. Range: real y, $y \neq -1$

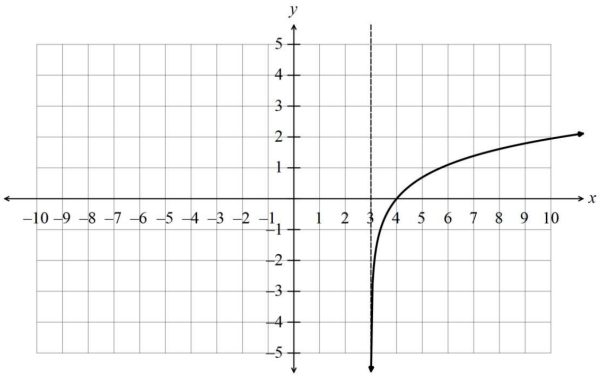
(B) Domain: real x, $x \neq 2$. Range: real y, $y \neq -1$

(C) Domain: real x, $x \neq 0$. Range: real y, $y \neq 1$

(D) Domain: real x, $x \neq 2$. Range: real y, $y \neq 1$

Q2 Presbyterian Ladies' College 2021 Trial Q4 · **1 mark**

The graph of $y = f(x)$ is shown below, where $x = 3$ is an asymptote and f is defined only for $x > 3$. Which inequality gives the domain of $y = -f(-x)$?



(A) $D: x > 3$

(B) $D: x < 3$

(C) $D: x > -3$

(D) $D: x < -3$

Q3 North Sydney Girls 2022 Prelim Q28 · **3 marks**

Consider the circle with equation $x^2 + y^2 - 4y + 6x = 12$.

(a) Find the centre and radius of the circle. (2 marks)

(b) Show that the point $(2, 4)$ lies outside the circle. (1 mark)

Q4 Manly 2021 Trial Q6 · **1 mark**

The equation of the tangent to the curve $y = f(x)$ at the point $(2, 7)$ is $y = 5x - 3$. What is the equation of the tangent to the curve $y = f(x + 2) + 1$ at the point $(0, 8)$?

(A) $y = 5x - 12$

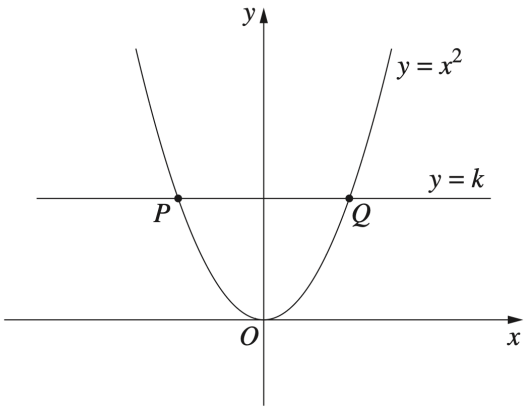
(B) $y = 3x - 4$

(C) $y = 5x + 8$

(D) $y = 5x - 13$

Q5 2023 HSC Q10 · **1 mark**

The graph $y = x^2$ meets the line $y = k$ (where $k > 0$) at points P and Q. The length of the interval PQ is L. Let a be a positive number. The graph $y = \dfrac{x^2}{a^2}$ meets the line $y = k$ at points S and T. What is the length of ST?



(A) $\dfrac{L}{a}$

(B) $\dfrac{L}{a^2}$

(C) aL

(D) a^2L