

UNIT G4 *Functions*Mental Maths
Questions

M G4 A (*no calculator*)

1. If $f(x) = 4x + 5$, what is the value of
- (a) $f(0)$ (5)
 - (b) $f(2)$ (13)
 - (c) $f(-10)$? (-35)
2. If $f(x) = x^2 - 1$, what is the value of
- (a) $f(0)$ (-1)
 - (b) $f(1)$ (0)
 - (c) $f(-1)$? (0)
3. If $f(x) = x + 1$ and $g(x) = x^2$, what is the value of
- (a) $f(g(2))$ (5)
 - (b) $g(f(1))$? (4)
4. If $f(3) = 1$, what is the value of $f^{-1}(1)$? (3)
5. If $f^{-1}(5) = 2$, what is the value of $f(2)$? (5)
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UNIT G4 *Functions*

Mental Maths Questions

M G4 B (*no calculator*)

1. How does the transformation $y = f(x + 2)$ move the graph of $y = f(x)$?
(horizontally, 2 units to the left)

2. If $y = f(x)$ is defined on the interval $[0, 1]$, on what interval is $y = f(2x)$ defined? $\left(\left[0, \frac{1}{2}\right]\right)$

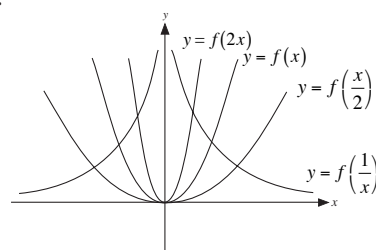
3. How does the transformation $y = f(x) + 1$ move the graph of $y = f(x)$? (vertically, 1 unit up)

4. (a) On a grid, sketch the graph of $y = f(x)$ when $f(x) = x^2$.

(b) On the same grid, sketch the graphs of:

(i) $y = f(2x)$ (ii) $y = f\left(\frac{x}{2}\right)$

(iii) $y = f\left(\frac{1}{x}\right)$.



5. How does the transformation $y = f(x - 2)$ move the graph of $y = f(x)$?
(horizontally, 2 units to the right)

6. If $y = f(x)$ is defined on the interval $[0, 1]$, on what interval is $y = f\left(\frac{x}{2}\right)$ defined? $([0, 2])$

7. How does the transformation $y = f(x) - 1$ move the graph of $y = f(x)$?
(vertically, 1 unit down)

8. (a) On a grid, sketch the graph of $y = f(x)$ when $f(x) = x$.

(b) On the same grid, sketch the graphs of:

(i) $y = f(2x)$ (ii) $y = f\left(\frac{x}{2}\right)$

(iii) $y = f\left(\frac{1}{x}\right)$.

