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A LEVEL MATHS

(8) Function Notation

WORKING AT D/E

(1) $f(x) = 3 - x^2,\ x \in R.$

Find $f(1.5)$

(2) $g(x) = \frac{16}{x^2},\ x \in R.$

Given that $a < 0$ and that $g(a) = 4$, find the value of a.

(3) $m(x) = x^2 - 7$ and $n(x) = 3x + 3.$

Find the positive solution to $m(x) = n(x)$ by setting them equal to each other.

WORKING AT B/C

(1) $f(x) = x^3 - 4x,\ x \in R,$

Find the roots of $f(x)$

(2) $g(x) = x^2 + 12x,\ x \in R,$

$g(x)$ has a minimum value of q when $x = p$. Find the values of p and q.

(3) $f(x) = x^3 - 7$ and $g(x) = x(x + 1)(x - 2)$

Find the solutions to $f(x) = g(x)$ giving your answers as simplified surds.

WORKING AT A*/A

(1) $f(t) = t^{-1.5} + 1$

Given that $f(a) = 28$, find the value of a

(2) $m(x) = x^6 + 7x^3 - 8, x \in R,$

Show that the roots of $m(x)$ are integers.

(3) $h(x) = (x + 1)^2(x^2 - 3)\ \ x \in R,$

Write down the roots of $h(x)$ in ascending order.