Final Revision Algebra (1)

Choose the correct answer
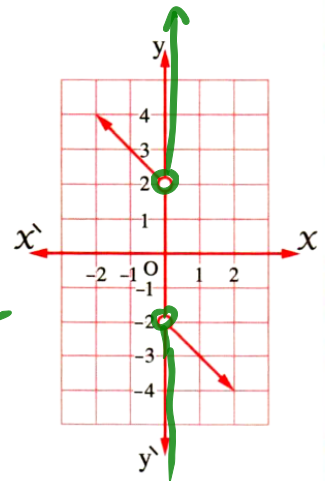
The opposite figure represents

a function of x, the domain

of the function is .... $\mathbb{R} - \{0\}$

(a) $\mathbb{R}$

(b) $\mathbb{R} -]-2, 2[$

(c) $\mathbb{R} - [-2, 2]$

(d) $\mathbb{R} - \{0\}$

range:
$]-\infty, -2[\cup]2, \infty[$
$\mathbb{R} - [-2, 2]$

Choose the correct answer

The domain of the fucntion $f : f(x) = \dfrac{x}{\sqrt[3]{x} - 2}$ is ....

(a) $\{8\}$ (b) $\mathbb{R} - \{8\}$ (c) $\mathbb{R}^+ - \{8\}$ (d) $\mathbb{R} - \{2\}$

$$\sqrt[3]{x} - 2 \neq 0$$

$$\left(\sqrt[3]{x}\right)^3 \neq (2)^3$$

$$\boxed{x \neq 8}$$

$$(\quad)^3$$

Choose the correct answer

The domain of the function : $f(x) = \dfrac{x}{\sqrt{1-x}}$ is ....

(a) $\mathbb{R}$　　　　(b) $\mathbb{R} - \{1\}$　　　　(c) $]-\infty, 1]$　　　　(d) $]-\infty, 1[$

$1 - x > 0$

$-x > -1$

$x < 1$

$]-\infty, 1[$

Choose the correct answer ✴

The domain of the function $f : f(x) = \dfrac{5}{\sqrt{x+1}-2}$ is ⋯⋯⋯⋯⋯

(a) $[-1, \infty[- \{3\}$

(b) $[-1, \infty[- \{5\}$

(c) $]-1, \infty[- \{3\}$

(d) $[-1, \infty[$

$$x+1 \geqslant 0$$

$$x \geqslant -1$$

$$\boxed{[-1, \infty[}$$

domain = $[-1, \infty[- \{3\}$

$$\sqrt{x+1} - 2 \neq 0$$

$$\sqrt{x+1} \neq 2 \quad \text{by sq}$$

$$x+1 \neq 4$$

$$\boxed{x \neq 3}$$

Choose the correct answer

The domain of the function $f : f(X) = \dfrac{\sqrt{x+1}}{2-x}$ is ....

(a) $]-1 , \infty[$

(b) $]-\infty , -1[$

(c) $[-1 , \infty[- \{2\}$

(d) $]-\infty , -1[- \{2\}$

$x+1 \geqslant 0$

$2 - x \neq 0$

$x \geqslant -1$

$2 \neq x$

$[-1, \infty[$

$\text{domain} = [-1, \infty[- \{2\}$

Choose the correct answer

The domain of the function : $f(x) = \dfrac{3x}{\sqrt[3]{x-8}}$ is ....

(a) $\mathbb{R}$ (b) $\mathbb{R} - \{8\}$ (c) $\mathbb{R} - \{2\}$ (d) $]8, \infty[$

$$x - 8 \neq 0$$

$$x \neq 8$$

$$\text{domain} = \mathbb{R} - \{8\}$$

Choose the correct answer   ✱ Study

The domain of the function : $f(X) = \dfrac{x}{|X|+k}$ is $\mathbb{R} - \{5, -5\}$, then k = ··············

(a) 5   (b) – 5   (c) ± 5   (d) zero

$|x| + k \neq 0$

$|x| \neq -k$

$f(x) = \dfrac{x}{|x| - 5}$

$D = R - \{\pm 5\}$

$|x| - 5 \neq 0$

$|x| \neq 5$ ✓✓

$|x| + 5 = 0$

$|x| = -5$

$|x| - 5 = 0$

$|x| = 5$

$f(x) = \dfrac{x}{|x| + 5}$

$D = R$

$|x| + 5 \neq 0$

$|x| \neq -5$

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Choose the correct answer

$\frac{f}{g}(x)$

If $f(x) = \sqrt{x-1}$, $g(x) = \sqrt{1-x}$, then the domain of the function $(f + g)$ is ···········

(a) $[1, \infty[$ (b) $]-\infty, 1]$ (c) $[-1, \infty[$ (d) $\{1\}$

$x - 1 \geq 0$

$x \geq 1$

$D_1 = [1, \infty[$

$1 - x \geq 0$

$-x \geq -1$

$x \leq 1$

$D_2 =]-\infty, 1]$

$D = D_1 \cap D_2 = \{1\}$

$$\frac{\sqrt{x-1}}{\sqrt{1-x}}$$

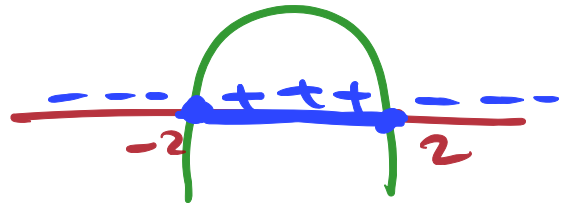$1 - x \neq 0$

$x \neq 1$

$D_1 \cap D_2 = \{1\} - \{1\}$

$= \phi$

Sign of function

Choose the correct answer

The domain of the function $f : f(x) = \sqrt{4 - x^2}$ is ·············

(a) $\mathbb{R}$ (b) $\mathbb{R} - [-2, 2]$ (c) $[-2, 2]$ (d) $]-2, 2[$

$4 - x^2 \geqslant 0$

domain $= [-2, 2]$

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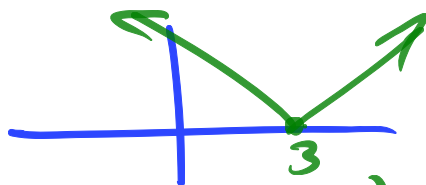### Choose the correct answer

$f(x) = \sqrt{\pi i}$

The domain of the function : $f(x) = \sqrt{x^2 - 6x + 9}$ is ··············

(a) $\mathbb{R}$

(b) $\mathbb{R} - \{3\}$

(c) $\mathbb{R} - \{-3\}$

(d) $\mathbb{R} - [-3, 3]$

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

$(3, 0)$

$= |x - 3|$

domain $= \mathbb{R}$

$f(x) = \dfrac{مبسط}{\sqrt{x^2 - 6x - 9}}$

3
$(3, 0)$

domain $= \mathbb{R} - \{3\}$

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Choose the correct answer

$Const$

The range of the function : $f(X) = -\underline{3}$ is ....

(a) $\mathbb{R}$ (b) $\mathbb{R}^-$ (c) $\{-3\}$ (d) $\mathbb{R} - \{-3\}$

$$f(x) = C$$
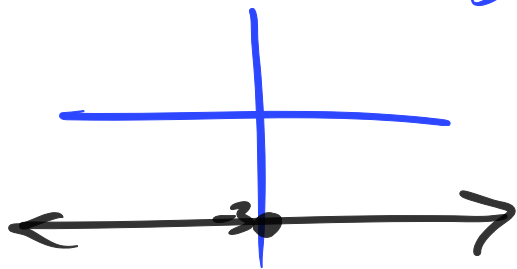
domain $= \mathbb{R}$

range $= \{C\}$

Choose the correct answer
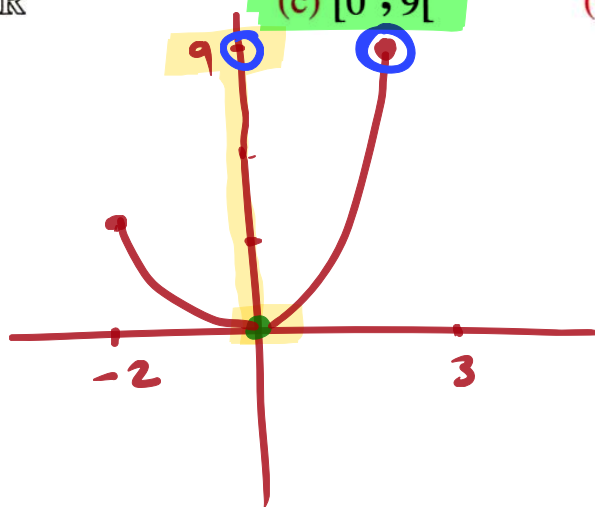
→ domain مش مهمة

The range of the function $f : [-2, 3[\longrightarrow \mathbb{R}$, $f(x) = x^2$ is ....

(a) $[4, 9[$ (b) $\mathbb{R}^+$ (c) $[0, 9[$ (d) $[0, 4]$

Choose the correct answer

The range of the function $f : f(x) = \dfrac{x^2 - x - 6}{x - 3}$ is ....

(a) $\mathbb{R}$ ~~(crossed out)~~

(b) $\mathbb{R} - \{5\}$

(c) $\mathbb{R} - \{3\}$

(d) $\mathbb{R} - \{2\}$

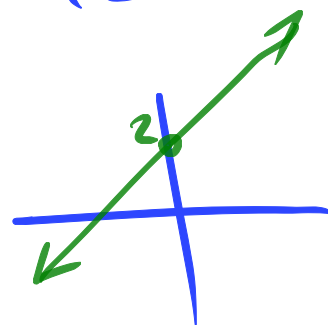$\text{domain} = \mathbb{R} - \{\underline{3}\}$

$\overset{x}{(3}, \overset{y}{5)}$

$f(x) = \dfrac{(x-3)(x+2)}{x-3} = x + 2$

$f(3) = 3 + 2 = 5$

$f(x) = x + 2$

$\text{range} = \mathbb{R} - \{5\}$

Choose the correct answer

If $f(x) = \begin{cases} 2x+3 & , \quad x \le 4 \\ x^2-4x & , \quad 4 < x \le 7 \end{cases}$, then $f(2) + f(5) = $ ......

$7+5$

12

(a) 7   (b) 8   (c) 12   (d) 25

$f(2) = 2(2) + 3 = 7$

$f(5) = (5)^2 - 4(5) = 25 - 20 = 5$

Choose the correct answer:

If $f(1) = 5$, $g(5) = 6$, then $(g \circ f)(1) = \ldots\ldots\ldots\ldots$

(a) 1   (b) 5   (c) 6   (d) 11

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$(f \circ g)(1) = 9$

Choose the correct answer

If $f(x) = x^2$, $g(x) = 3x$, then $(f \circ g)(x) = \cdots\cdots$ at $x = 1$

(a) 9   (b) 6   (c) 3   (d) 27

$$(f \circ g)(x) = (3x)^2 = 9x^2$$

$$(f \circ g)(1) = 9(1)^2 = 9$$

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Choose the correct answer

The opposite figure :

Represents the curves of the two functions

f and g , then $(g \circ f)(1) = \cdots$ ③ -2

(a) 6

(b) 5

(c) − 2

(d) 4

Curve — f(x)

line — g(x)

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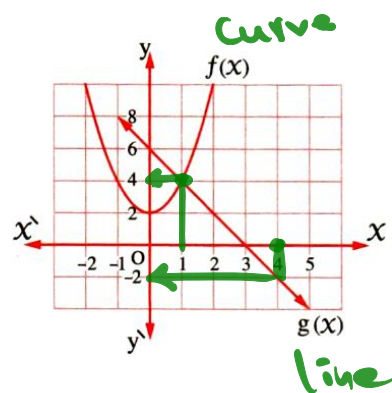
Choose the correct answer

$f : \mathbb{R} \longrightarrow \mathbb{R}$, $f(x) = 3x + 1$, $g(x) = \begin{cases} 2x+1 & , & x > 2 \\ 3x & , & x < 2 \end{cases}$

$f(7) = 3(7) + 1$

, then $(f \circ g)(3) = $ **22**

(a) 21   (b) 22   (c) 28   (d) 30

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Choose the correct answer

If f , g are two functions where $f(x) = 3x + 1$, $g(x) = x^2 + a$ and $(f \circ g)(2) = -2$, then a = ··············

(a) 2   (b) 3   (c) 5   (d) −5

$$g(2) = (2)^2 + a = \boxed{4 + a}$$

$$3(4 + a) + 1 = -2$$
$$12 + 3a + 1 = -2$$
$$3a + 13 = -2$$
$$3a = -15 \implies \boxed{a = -5}$$

Choose the correct answer

If $f(x) = 3x + 2$, $g(x) = 2x + k$ and $(f \circ g)(x) = (g \circ f)(x)$, then k = ...

(a) 1   (b) 2   (c) 3   (d) 4

$(f \circ g)(x) = (g \circ f)(x) = x$

$(f \circ g)(x) = 3[2x + k] + 2 = x$

$= 6x + 3k + 2 = x$

$(g \circ f)(x) = 2[3x + 2] + k = x$

$= 6x + 4 + k$

$6x + 3k + 2 = 6x + 4 + k$

$3k - k = 4 - 2$

$2k = 2 \implies \boxed{k = 1}$

Choose the correct answer

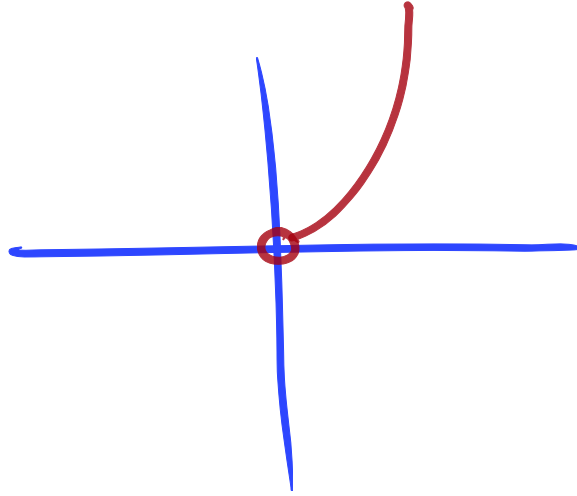If $f : \mathbb{R}^+ \longrightarrow \mathbb{R}$, $f(x) = x^2$, then the function is ··············

(a) even.   (b) odd.   (c) neither odd nor even.   (d) not one-to-one.
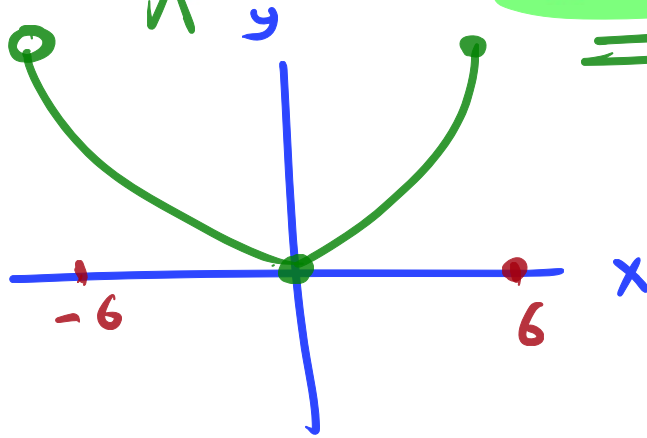
Choose the correct answer

If f is a function where $f : \,]-6\,,6] \longrightarrow \mathbb{R}\,,\,f(X) = X^2$, then the function

$f(X)$ is ⋯⋯⋯⋯

(a) even.

(b) odd.

(c) one-to-one.

(d) otherwise.

$]-6,6[\qquad [-6,6]$

Choose the correct answer

$O \times O = E$

If $f(X) = X^3 \tan X$, then it is ···········

(a) odd.　　　　(b) even.　　　　(c) one-to-one.　　　　(d) neither odd nor even.

$$f(-x) = (-x)^3 \tan(-x)$$

$$= + x^3 \tan x = f(x)$$

Choose the correct answer $O \times E = O$

The function $f : f(x) = x \cos x$ is ··············

(a) even.   (b) odd.   (c) neither odd nor even.   (d) one-to-one.

Choose the correct answer

If $f(x)$ is an even function , then $f(a) + f(-a) = \dots$ $f(a) + f(a)$

$2\,f(a)$

(a) zero (b) $f(a)$ (c) $2\,f(a)$ (d) $f(2a)$

even $\Rightarrow f(-a) = f(a)$

odd $\Rightarrow f(-a) = -f(a)$

Choose the correct answer

If $f(X)$ is an odd function, then $\dfrac{f(a)}{f(-a)} = \dfrac{f(a)}{-f(a)} = -1$

(a) 1   (b) -1 (c) $f(a)$ (d) $f(-a)$

Choose the correct answer

$[\ldots , \ldots]$

$a = -b$
$b = -a$

If f is an **even** function in the interval $[a , b]$, then b = ⋯⋯⋯

(a) a   (b) – a   (c) 2 a   (d) a^3

ذوبيه عند صفر ذوبيه عند ثابت
الدالة ل، صفر
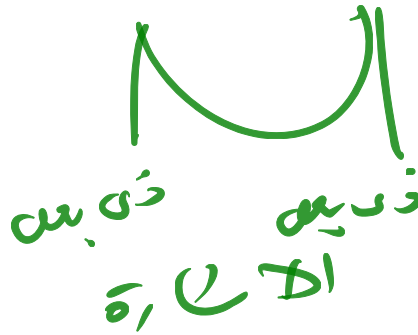
Choose the correct answer

If f is an even function , the curve of the function passes through the point $(-3, 2m+1)$ **5**

and $f(3) = 5$, then m = ··············

(a) – 1   (b) zero   (c) 1   (d) 2

$$2m + 1 = 5$$

$$2m = 4$$

$$m = 2$$

even

$$f(3) = f(-3) = 5$$

odd

$$f(3) = 5$$

$$f(-3) = -5$$

Choose the correct answer

If f is an odd function and $f(1) = 2$, the point $(-1, 3m + 7)$ lies on the curve of the function f, then m = ·············· $f(-1) = -2$

(a) -3 (b) 3   (c) $\dfrac{5}{3}$ (d) $\dfrac{-5}{3}$

$$3m + 7 = -2$$
$$3m = -9$$
$$m = -3$$

Choose the correct answer

If f is an even function and $6\,f(X) + 4\,f(-X) = 40$, then $f(3) = $ ......4......

(a) 4　　　　　　　(b) – 4　　　　　　　(c) – 3　　　　　　　(d) 20

$$6\,f(x) + 4\,f(x) = 40$$

$$10\,f(x) = 40$$

$$\boxed{f(x) = 4}\ \text{Const}$$

$$f(..) = 4$$

Choose the correct answer

If f is an odd function, then $\dfrac{2f(X) + 8f(-X)}{3f(X)} = $ ....

(a) zero   (b) -2 (c) -4 (d) 4

$$\frac{2f(x) - 8f(x)}{3f(x)} = \frac{-6f(x)}{3f(x)}$$

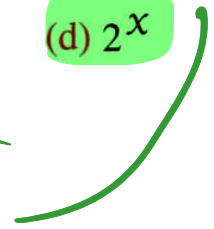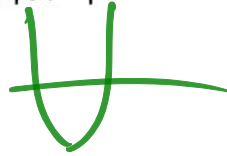$$= -2$$

Choose the correct answer

not even

From the following functions , the one-to-one function is $f(x) = $ ··············

(a) $1 - x^2$

(b) $|x - 2|$

(c) $|x^3|$

(d) 2^x

Choose the correct answer

The one-to-one function from the functions defined by the following rules is ....

(a) $f(x) = (x+2)^2$ (b) $f(x) = -6$ (c) $f(x) = x+3$ (d) $f(x) = |1-x|$

$|x-1|$

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Choose the correct answer

$$f(a) = f(b)$$
$$a = b$$

If f is one-to-one and $f(k^2 + 4) = f(4k)$, then k = ·············

(a) − 2   (b) 2   (c) − 4   (d) 4

$$k^2 + 4 = 4k$$

$$k^2 - 4k + 4 = 0$$

$$k = 2$$

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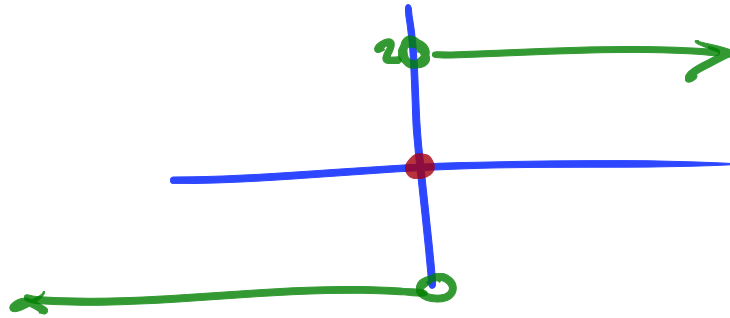**Choose the correct answer**   Con&   odd

The function $f : f(X) = \begin{cases} 2 & , \quad x > 0 \\ -2 & , \quad x < 0 \end{cases}$ is symmetric about the point = ⋯⋯⋯⋯

(a) $(2 , 0)$ (b) $(-2 , 0)$ (c) $(0 , 0)$ (d) $(2 , -2)$

Choose the correct answer

The coordinates of the vertex of the curve $f : f(x) = (x-3)^2$ is ……… $(3, 0)$

(a) $(0, -3)$ (b) $(-3, 0)$ (c) $(3, 0)$ (d) $(3, 3)$

Choose the correct answer

The point of symmetry of the function $f(x) = x^3 - 2$ is ......$(0, -2)$......

(a) $(0, -2)$ (b) $(-2, 0)$ (c) $(2, 0)$ (d) $(0, 2)$

Choose the correct answer

The vertex of the curve of the function $f : f(x) = (2 - x)^2 + 3$ is ··············

(a) $(2, 3)$ (b) $(2, -3)$ (c) $(-2, 3)$ (d) $(-2, -3)$

$$f(x) = (x-2)^2 + 3$$

$$(2, 3)$$

$$(a-x)^2 = (x-a)^2$$

$$|a-x| = |x-a|$$

$$(a-x)^3 = -(x-a)^3$$

Choose the correct answer

If $f : f(x) = x^3$, then the point of symmetry of the curve $g(x) = f(x) + 3$ is ············

(a) $(3, 0)$ (b) $(0, 3)$ (c) $(-3, 0)$ (d) $(0, -3)$

$$g(x) = f(x) + 3$$
$$g(x) = x^3 + 3$$

$$(0, 3)$$

Choose the correct answer

The point of symmetry of the curve of the function $f : f(x) = \dfrac{1}{x-2} + 5$ is ...$(2, 5)$...

(a) $(-2, 5)$ (b) $(2, 5)$ (c) $(2, -5)$ (d) $(-2, -5)$

Choose the correct answer

$(x, y) \Rightarrow x = ?$

The equation of line of symmetry of the curve of the function $f : f(x) = (3 - x)^2 + 2$ is ············

(a) $x = -3$ (b) $x = 2$ (c) $x = 3$ (d) $y = 3$

$f(x) = (x - 3)^2 + 2$

$(3, 2)$

$x = 3$

Choose the correct answer

The axis of symmetry of the equation $f : f(x) = |x - 3| + 2$ is the straight line whose equation is ⋯⋯⋯⋯⋯

(a) $x = 3$ (b) $x = 2$ (c) $x = -3$ (d) $y = 3$

$(3, 2)$

$x = 3$

Choose the correct answer

$* \quad f(x) = (x+1)^2$

The vertex of the curve of the function $f(x) = x^2 + 2x + 1$ is ··············

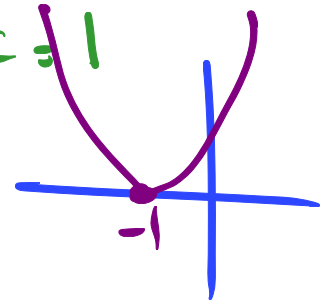(a) $(1, 0)$ (b) $(-1, 0)$ (c) $(0, -1)$ (d) $(0, 1)$

$a = 1 \qquad b = 2 \qquad c = 1$

$X = \dfrac{-b}{2a} = \dfrac{-2}{2(1)} = -1$

$y = f(-1) = (-1)^2 + (2)(-1) + 1 = 0$

$(-1, 0)$

Choose the correct answer ✱ $f(x) = \dfrac{a}{x-b} + c \Rightarrow (b, c)$

The point of symmetry of the curve of the function $f : f(X) = \dfrac{2X+1}{X-1}$ is ....

(a) $(2, 0)$ (b) $(2, 1)$ (c) $(0, 1)$ (d) $(1, 2)$

$$f(x) = \frac{2x - 2 + 1 + 2}{x - 1}$$

$$= \frac{2(x-1)}{x-1} + \frac{3}{x-1}$$

$$= 2 + \frac{3}{x - 1}$$

$$f(x) = \frac{3}{x - 1} + 2$$

$$(1, 2)$$

1) 2   1
       ↓   2
    ②   ③
  الأصلية   Remainder الباقي

$$2 + \frac{3}{x - 1}$$

$$(1, 2)$$

Choose the correct answer

The curve $g(x) = x^2 + 4$ is the same as the curve $f(x) = x^2$ by translation 4 units in direction of ·········· $(0, 4)$

$(0, 0)$

(a) $\overrightarrow{Ox}$ (b) $\overleftarrow{Ox}$ (c) $\overrightarrow{Oy}$ (d) $\overleftarrow{Oy}$

(نفس y ، عكس x)

Choose the correct answer $(3,0) \leftarrow \underset{\smile}{} (0,0)$

The curve of the function $g(x) = (x-3)^2$ is the same as the curve $f(x) = x^2$
by translation 3 units in direction of ············

(a) $\overrightarrow{Ox}$ (b) $\overleftrightarrow{Ox}$ (c) $\overrightarrow{Oy}$ (d) $\overleftrightarrow{Oy}$

Choose the correct answer:

(-3, 0)　　　　(9, 0)

The curve of $g(X) = |X + 3|$ is the same as the curve $f(X) = |X|$ by translation 3 units in direction of ·············

(a) $\overrightarrow{Ox}$　　　　(b) $\overrightarrow{Ox}$　　　　(c) $\overrightarrow{Oy}$　　　　(d) $\overrightarrow{Oy}$

Choose the correct answer

$(0,0) \Rightarrow (3,-2)$

Let $f(X) = X^3$ translated 3 units to the right and 2 units downward and the resulted curve is $g(X)$, then $g(-1) = \cdots\cdots$

$(0,0)$

(a) – 64   (b) 6   (c) – 1   (d) – 66

$$g(x) = (x-3)^3 - 2$$

$$g(-1) = (-1-3)^3 - 2$$

$$= -64 - 2 = -66$$

Choose the correct answer

If $f(X) = \dfrac{a}{X+b} + c$ where a , b , c are real numbers has point of symmetry (4 , 4)

, then $a^{b+c} = $ ...... $a^{-4+4} = a^0 = 1$

(a) a^{16} (b) a^8 (c) 1   (d) zero

$(-b, c)$

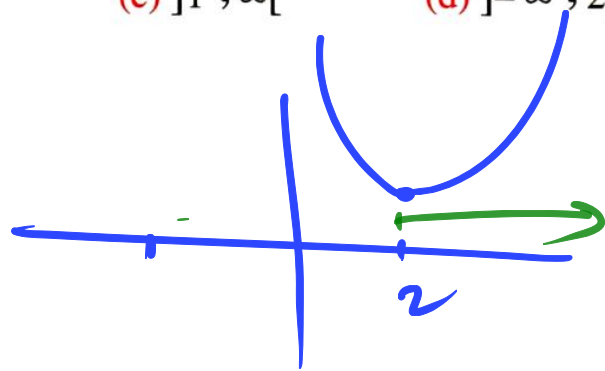$(4 , 4)$

$-b = 4$

$b = -4$

$c = 4$

Choose the correct answer

The function $f(X) = (X - 2)^2 + 1$ is increasing in the interval ....

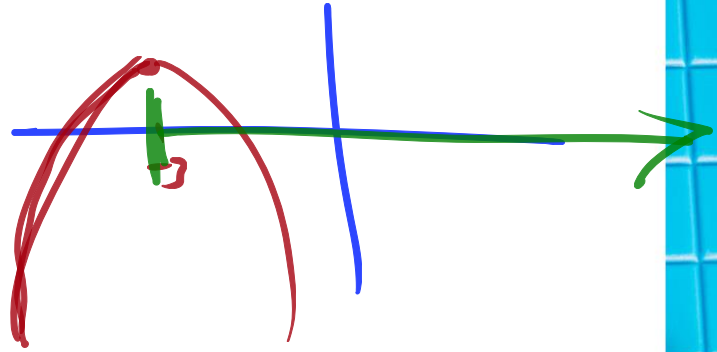(a) $]2 , \infty[$ (b) $]-1 , \infty[$ (c) $]1 , \infty[$ (d) $]-\infty , 2[$
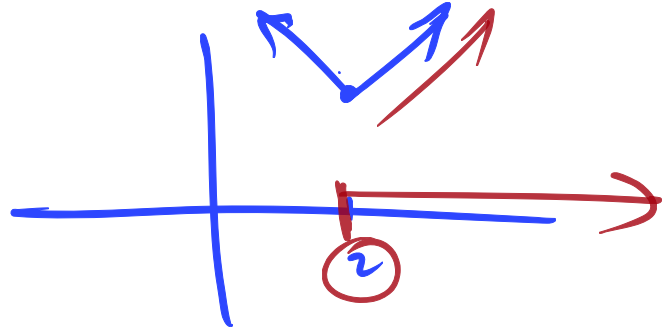
$(\ 2 , 1\ )$

Choose the correct answer

The function $f(x) = 1 - (x + 3)^2$ is decreasing in the interval $\cdots\cdots\cdots\cdots$

(a) $]-\infty, -3[$ (b) $]-3, \infty[$ (c) $]-1, \infty[$ (d) $]-\infty, -1[$

$(-3, 1)$

Choose the correct answer

$f(x) = |x - 2| + 3$ is increasing in ··············

(a) $]3, \infty[$ (b) $]2, \infty[$ (c) $]-\infty, 3[$ (d) $]-\infty, 2[$

$(2, 3) \checkmark$

Choose the correct answer

O $(3, -4)$

The area included between the curve of the function $f(x) = |x - 3| - 4$ and the x-axis = ·············· square units.

(a) 8   (b) 7   (c) 14   (d) 16

$|x-3| - 4 = 0$

$|x-3| = 4$

$x - 3 = 4$ $x - 3 = -4$

$\boxed{x = 7}$ $\boxed{x = -1}$

$A = \frac{1}{2} \times b \times H$

$= \frac{1}{2} \times 8 \times 4$

$= 16 \; S.u.$
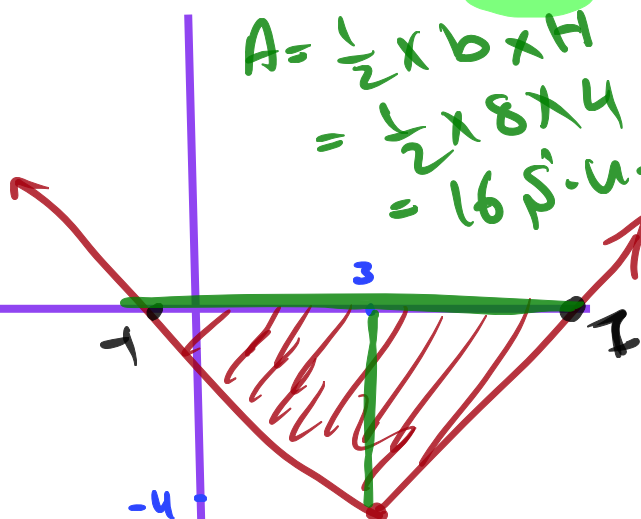
Choose the correct answer

The range of the function $f(x) = 2 - x^2$, $x \neq 0$ is ....

(a) $]-\infty, 2]$ (b) $]2, \infty[$ (c) $]0, 2]$ (d) $[0, 2]$
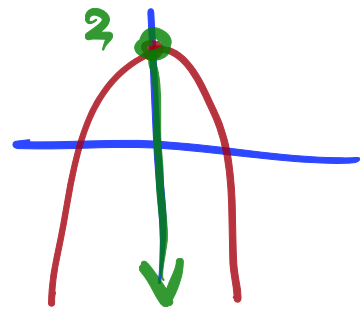
$$f(x) = \boxed{-x^2} + 2$$

$(0, 2)$

Choose the correct answer

The range of the function $f(x) = \dfrac{2|x|}{x}$ is ....

(a) $\{2, -2\}$ (b) $\{-2\}$ (c) $[-2, 2]$ (d) $\mathbb{R} - \{0\}$

$$f(x) = \begin{cases} \dfrac{2x}{x} & x > 0 \\ \dfrac{-2x}{x} & x < 0 \end{cases}$$

$$f(x) = \begin{cases} 2 & x > 0 \\ -2 & x < 0 \end{cases}$$

$\{ \quad \}$
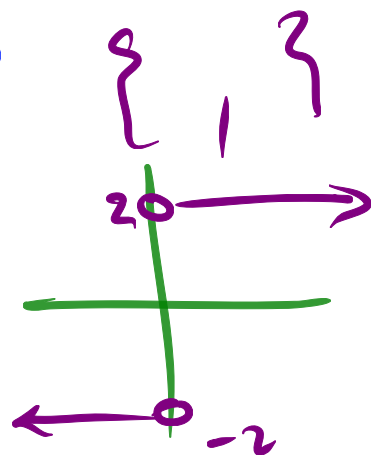
Choose the correct answer

The solution set of the equation $|x - 3| = 5$ in $\mathbb{R}$ is ·············

(a) $\{3, 5\}$ (b) $\{-2, 8\}$ (c) $[-2, 8]$ (d) $\{-8, 8\}$

$$x \geqslant 3$$
$$x - 3 = 5$$
$$x = 8 \checkmark$$

$$x \leqslant 3$$
$$x - 3 = -5$$
$$x = -2 \checkmark$$

$$\{8, -2\}$$

Choose the correct answer

If $f(x) = |x - 2| - 3$, then the solution set of the equation $f(x) = 0$ is ··············

(a) $\{-1, 5\}$ (b) $\{1, 5\}$ (c) $\{0, 5\}$ (d) $\{1, 0\}$

$$|x - 2| - 3 = 0$$

$$x \geq 2$$
$$x - 2 - 3 = 0$$
$$x - 5 = 0$$
$$\boxed{x = 5} \checkmark$$

$$x < 2$$
$$-x + 2 - 3 = 0$$
$$-x - 1 = 0$$
$$-x = 1$$
$$\boxed{x = -1} \checkmark$$

Choose the correct answer

جداً مهم

The solution set of the equation $|x - 2| + 3 = 0$ in $\mathbb{R}$ is ....

(a) -3 (b) 5 (c) -5 (d) $\varnothing$

$$|x - 2| = -3$$

$\varnothing$

Choose the correct answer

v.imp

If $f(x) = |x - 3| + 1$, then the solution set of the equation $f(x + 3) = 4$ in $\mathbb{R}$ is ....

(a) $\{3, -3\}$ (b) $\{0, 3\}$ (c) $\{0, -3\}$ (d) $\{3\}$

$$|x + 3 - 3| + 1 = 4$$

$$|x| = 3 \qquad x = \pm 3$$

Choose the correct answer

The products of the two roots of the equation : $x^2 - 3|x| - 10 = 0$ equals ············ -10

(a) -25 (b) 10 (c) 25 (d) 10

$L + M = \dfrac{-b}{a}$

$L M = \dfrac{c}{a}$

$x \geq 0$
$x^2 - 3x - 10 = 0$
$\boxed{x = 5}$
$x = -2$
ref

$x < 0$
$x^2 + 3x - 10 = 0$
$x = 2$ $\boxed{x = 5}$
ref

$\text{Product} = (5)(-5)$
$= -25$

Choose the correct answer

The solution set of the equation : $\sqrt{4x^2 - 12x + 9} = 7$ in $\mathbb{R}$ is ....

(a) $\{5\}$ (b) $\{-2\}$ (c) $\{-2, 5\}$ (d) $\mathbb{R}$

$$\sqrt{(2x-3)^2} = 7$$

$$|2x-3| = 7$$

$$2x - 3 = 7 \qquad\qquad 2x - 3 = -7$$
$$2x = 10 \qquad\qquad\qquad 2x = -4$$
$$\boxed{x = 5} \qquad\qquad\qquad \boxed{x = -2}$$

Choose the correct answer

The solution set of the equation : $x|x| + 9 = 0$ in $\mathbb{R}$ is .... ✱ v.imp

(a) $\{3, -3\}$ (b) $\{-3\}$ (c) $\{3\}$ (d) $\varnothing$

$x \geqslant 0$

$x^2 + 9 = 0$

$x^2 = -9$

$\varnothing$

$\boxed{x < 0}$

$-x^2 + 9 = 0$

$-x^2 = -9$

$x^2 = 9$

$x = \pm 3$

$x = 3 \qquad x = -3$

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Choose the correct answer

The solution set of the equation : $|x| = -x$ in $\mathbb{R}$ is ....

(a) $\varnothing$ (b) $\mathbb{R}$ (c) $\mathbb{R}^-$ (d) $]-\infty, 0]$

$$x \geqslant 0$$
$$x = -x$$
$$2x = 0$$
$$\boxed{x = 0} \checkmark$$

$$x < 0$$
$$-x = -x$$
$$-x + x = 0$$
$$0 = 0$$

$$]-\infty, 0[$$
$$]-\infty, 0]$$

Choose the correct answer

The solution set of the equation : $|x - 1| = x - 1$ in $\mathbb{R}$ is ....

(a) $\mathbb{R}$ (b) $\mathbb{R} - \{1\}$ (c) $[1, \infty[$ (d) $]-\infty, 1]$

$x \geq 1$

$x - 1 = x - 1$

$-1 = -1$

$[1, \infty[$

$x < 1$

$-x + 1 = x - 1$

$-2x = -2$

$x = 1$

ref.

Choose the correct answer

The solution set of the equation : $|x - 3| = 2x + 9$ in $\mathbb{R}$ is $\cdots\cdots\cdots$

(a) $\{-11\}$ (b) $\{-2\}$ (c) $\{-2, -11\}$ (d) $\varnothing$

$$x \geqslant 3$$

$$x - 3 = 2x + 9$$

$$x - 2x = 9 + 3$$

$$-x = 12$$

$$x = -12$$

$$x < 3$$

$$-x + 3 = 2x + 9$$

$$-x - 2x = 9 - 3$$

$$-3x = 6$$

$$\boxed{x = -2}$$

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Choose the correct answer

The solution set of the inequality : $|x| - 2 > 0$ in $\mathbb{R}$ is ··············

(a) $\mathbb{R} - [-2, 2]$ (b) $]-2, 2[$ (c) $\mathbb{R} -]-2, 2[$ (d) $[-2, 2]$

$$|x| > 2$$

$$x > 2 \qquad\qquad x < -2$$

$$\mathbb{R} - [-2, 2]$$

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Choose the correct answer

The solution set of the inequality : $|x - 2| > 3$ is ··············

(a) $\mathbb{R} - [-1, 5]$ (b) $\mathbb{R} -]-1, 5[$ (c) $[-1, 5]$ (d) $]-1, 5[$

$$x - 2 > 3 \qquad\qquad x - 2 < -3$$
$$x > 5 \qquad\qquad x < -1$$

$$\mathbb{R} - [-1, 5]$$

Choose the correct answer اختر

The solution set of the inequality : $|2 - x| \leq 4$ is ··············

(a) $\mathbb{R} - [-2, 6]$ (b) $\mathbb{R} -]-2, 6[$ (c) $]-2, 6[$ (d) $[-2, 6]$

$$|x - 2| \leq 4$$

$$-4 \leq x - 2 \leq 4$$

$$-2 \leq x \leq 6$$

$$[-2, 6]$$

Choose the correct answer

The solution set of the inequality : $\sqrt{x^2 - 2x + 1} \geq 4$ in $\mathbb{R}$ is $\cdots\cdots\cdots$

(a) $[-3, 5]$ (b) $\mathbb{R} -]-3, 5[$ (c) $]-3, 5[$ (d) $\mathbb{R} - [-3, 5]$

$$\sqrt{(x-1)^2} \geq 4$$

$$|x-1| \geq 4$$

$$x - 1 \geq 4 \qquad\qquad x - 1 \leq -4$$

$$x \geq 5 \qquad\qquad x \leq -3$$

$$\mathbb{R} -]-3, 5[$$

Choose the correct answer $\sqrt{(x-3)^2}$

The solution set of the inequality : $2\sqrt{x^2-6x+9}-|3-x|+5>5$ in $\mathbb{R}$ is ·············

(a) $\varnothing$ (b) $\mathbb{R}$ (c) $\{3\}$ (d) $\mathbb{R}-\{3\}$

$$2|x-3|-|x-3|>0$$

$$|x-3|>0$$

$$S.S. = \mathbb{R}-\{3\}$$

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Choose the correct answer

$D = \mathbb{R} - \{2\}$

The solution set of the inequality : $\dfrac{1}{|x-2|} \geq \dfrac{1}{2}$ in $\mathbb{R}$ is ············

(a) $]0,4[$ (b) $[0,4] - \{2\}$ (c) $[0,4]$ (d) $]0,4]$

$$2 \geq |x-2|$$

$$|x-2| \leq 2$$

$$-2 \leq x - 2 \leq 2$$

$$0 \leq x \leq 4$$

$$S.S. = [0,4] - \{2\}$$

Choose the correct answer

The solution set of the inequality : $|x + 3| \le 0$ is ....

(a) $\varnothing$ (b) $]-\infty, 3]$ (c) $]-3, \infty[$ (d) $\{-3\}$

$$|x + 3| < 0$$

$$\varnothing$$

$$x + 3 = 0$$

$$\boxed{x = -3}$$