Question No. 16

Which of the following functions is one-to-one?

- $f(x) = \sqrt{16 - x^2}$
- $f(x) = -2x + 5$
- $f(x) = 5x^2 - 1$
- $f(x) = -2x^2 + 5$

B

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MKCL OES

Math_FT

Total questions in exam: **40** | Answered: **40**

Question No. 37

Let $a > 1$. The solution set of the equation $\log_{ax}(2x^2 - a^2) = 2$ is

- ○ $S = \{a, 2a\}$
- ○ $S = \{a\}$
- ○ $S = \{-a\}$
- ● $S = \{-a, a\}$

B

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Question No. 13

Let $a, b \in \mathbb{R}$. Give the values of a and b that make this statement true:

$$2b + (3a - \sqrt{2})i = b - 2 + (a + \sqrt{8})i$$

○ $a = \frac{3\sqrt{2}}{2}$ and $b = -2$

○ $a = -3\sqrt{2}$ and $b = -2$

○ $a = 3\sqrt{2}$ and $b = 2$

○ $a = -\frac{2\sqrt{2}}{3}$ and $b = -2$

A

Question No. 31

Which of the following functions is one-to-one

○ F= { (-3,-3), (0,0), (4,-2), (1,-5) }
○ F= { (3,5), (6,0), (3,-2), (1,-5) }
○ F= { (4,-3), (1,0), (5,-2), (1,-3) }
○ F= { (-3,-2), (0,4), (3,-2), (1,-5) }

A

Save & Next تبثي والتالي

Question No. 35

If a function $f(x)$ has an inverse function and $f(-2) = 11$, then

- $f^{-1}(11) = -1$
- $f^{-1}(-2) = -11$
- $f^{-1}(11) = -2$
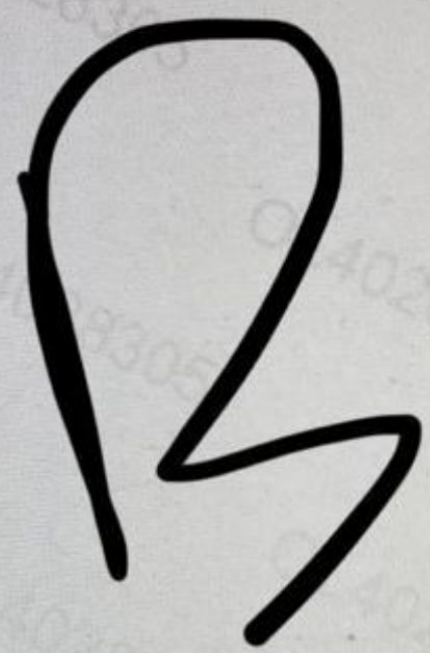- $f^{-1}(2) = -11$

C

Question No. 16

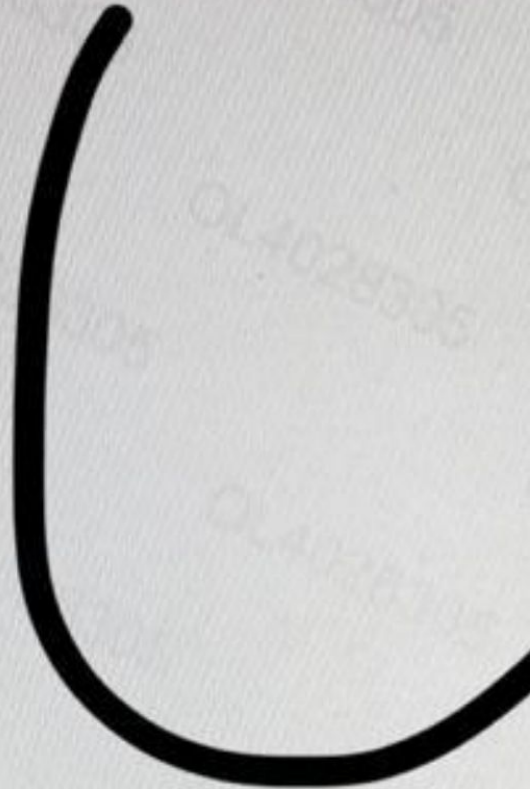Evaluate $\lim\limits_{x \to -3} \dfrac{x^2 + 7x + 12}{x + 3} =$

- ○ 4
- ○ 1
- ○ -3
- ○ 0

B

Question No. 15

The graph of $f(x) = -3x^2 + x + 4$ is
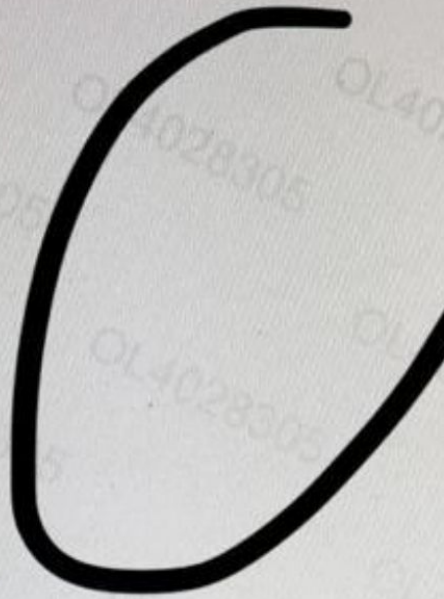
- ○ Open left
- ○ Open right
- ○ Open down
- ○ Open up

Question No. 14

Evaluate $\lim\limits_{x \to -\infty} \dfrac{x^4 + 2x^2 - 1}{x^3 - 2x - 2} =$

- -1
- 0
- $-\infty$
- 1

The supplement of the angle 45° is:

- ○ 45°
- ○ 60°
- ○ 80°
- ○ 135°

D

Question No. 2

If $x \in N$, then the value of i^{4x-1} is

- -1
- 1
- $-i$
- i

Question No. 18

Which of the following points are on the graph of $f(x) = 4 + 2\log_3(1 - 2x)$?

○ $(0, 4)$, $(-1, 6)$ and $(\frac{1}{3}, -2)$

○ $(3, 1)$, $(1, 0)$ and $(\frac{1}{3}, -1)$

○ $(0, 4)$, $(-1, 6)$ and $(\frac{1}{3}, 2)$

○ $(0, 6)$, $(-1, 4)$ and $(\frac{1}{3}, 2)$

B

Save & Next خط رہیں

Question No. 24

Let $a \in (-\infty, 0]$. Solve the inequality $|2x - 2| \leq |-2a|$.

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

A?

Question No. 4

Assume that $z = -3 + 4i$ and $zw = -14 + 2i$. Find the value of w in the form $a + bi$, where $a, b \in$

○ $w = 2 + 2i$
○ $w = 50 - 50i$
○ $w = 2 - 2i$
○ $w = 50 + 50i$

A

Save & Next هیا رلمار

Question No. 7

The expression $(1 + \cot^2\theta)$ equals

- $\cos^2\theta$
- $\sec^2\theta$
- $\sin^2\theta$
- $\csc^2\theta$

D

Question No. 40

The solution set of the equation $\log_5(x+2) + \log_5(x-2) = 1$ is

- $\varnothing$
- $\{-3\}$
- $\{3\}$
- $\{-3,3\}$

C

Save & Next طفار التالی

Question No. 4

Let $a \in \mathbb{R}$ and $f(x) = 0.9^{(a^2-3a+2)x-1} - a$. Give the condition on a such that $f(x)$ is increasing.

- $a \in (2, \infty)$
- $a \in (-\infty, 1)$
- $a \in (1, 2)$
- $a \in (-\infty, 1] \cup [2, \infty)$
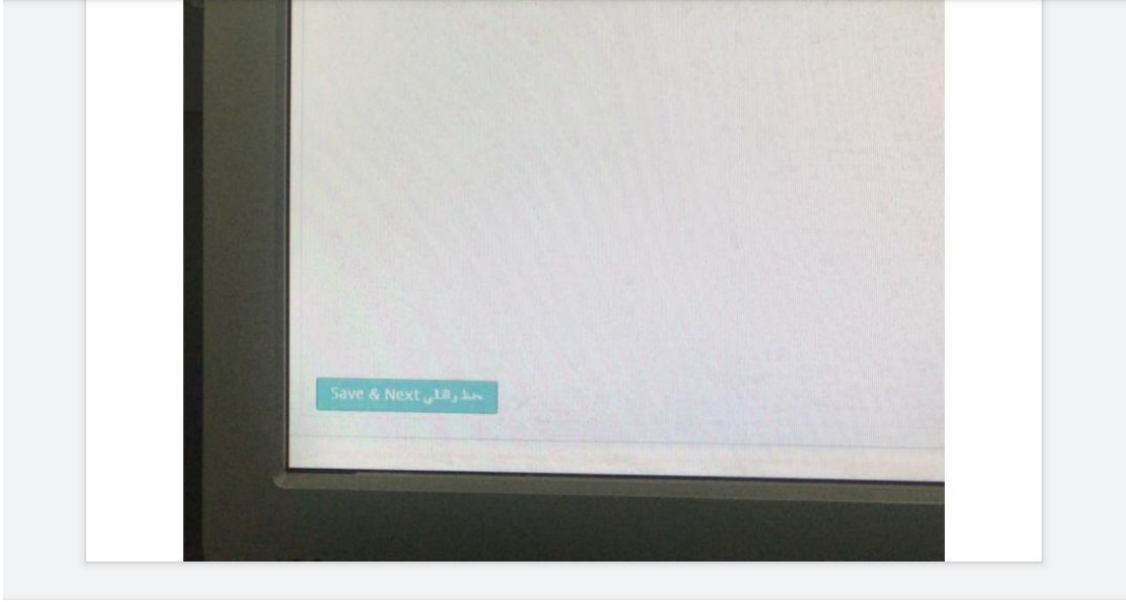
C

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Question No. 27

If $a \neq 1$ is a positive real number such that $5^x = a$ then $x =$

- $\dfrac{\ln 5}{\ln a}$
- $\ln\left(\dfrac{a}{5}\right)$
- $\dfrac{\ln a}{\ln 5}$
- $\ln\left(\dfrac{5}{a}\right)$

Question No. 16

Find the value of 'c' that will allow this polynomial to be written as a perfect square.

$$x^2 - x + c$$

- ○ $\frac{1}{2}$
- ○ $\frac{1}{4}$
- ○ 1
- ○ $-\frac{1}{2}$

B
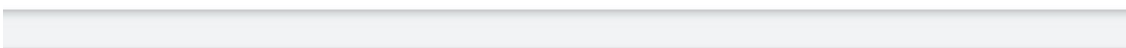
Question No. 2

Let $a \in \mathbb{R}$. If the solution set of the inequality $|4x - 8| + a > 0$ is $(-\infty, 2) \cup (2, +\infty)$

- ○ $a = 1$
- ○ $a = 0$
- ○ $a = 2$
- ○ $a = -1$

Question No. 18

The solution set of the equation $-1 + \log_8(3x + 2) = -\frac{1}{3}$ is

○ $\{\frac{2}{3}\}$

○ $\{-\frac{2}{3}\}$

○ $\{\frac{3}{2}\}$

○ $\{-\frac{1}{3}\}$

A

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Question No. 12

Evaluate $\lim\limits_{x \to -\infty} \dfrac{x^4 + 2x^2 - 1}{x^3 - 2x - 2} =$

- ○ -1
- ○ 1
- ○ 0
- ○ $-\infty$

D

Question No. 11

If $a \neq 1$ is a positive real number such that $5^x = a$ then $x =$

- $\ln\left(\dfrac{5}{a}\right)$
- $\dfrac{\ln a}{\ln 5}$
- $\ln\left(\dfrac{a}{5}\right)$
- $\dfrac{\ln 5}{\ln a}$

C

Total questions in exam: 40 | Answered: **5**

Question No. 10

The expression $(\cos^2\theta + \sin^2\theta)$ equals

○ $\sec^2\theta$

○ 1

○ $\csc^2\theta$

○ -1

B

Question No. 14

The equation $y = 3^{x-1}$ can be written a

- ○ $x = \log_3 y$
- ○ $x = \log_3(y + 1)$
- ○ $x = 1 + \log_3 y$
- ○ $y = 1 + \log_3 x$

C

Question No. 1

Evaluate $\lim\limits_{x \to 2} \dfrac{x^3 - 1}{x - 1} =$

- ○ 1
- ○ 7
- ○ 2
- ○ 4

B

Question No. 26

Let $a > 0$ and $f(x) = (a^2 - 9)x^2 + x - a$. Give the value of a such that $f(x)$ is a one-to-one function.

○ $a = 1$

⦿ $a = 3$

○ $a = 2$

○ $a = -3$

B

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Question No. 29

Let $f(x) = ax^2 + bx + 1$, find the values of a and b such that $f(x) = f(-x)$, for all $x \in \mathbb{R}$.

- $a = b = 1$.
- $a = -1$ and $b = 1$.
- $a \in \mathbb{R}$ and $b \neq 0$.
- $a \in \mathbb{R}$ and $b = 1$.

B

Question No. 5

The solution set of the equation $7(2x - 1) = 9 + 14x$ is

- 1
- $\emptyset$
- $\{1,2\}$
- $\{5\}$

Total questions in exam: **40** | Answered: **40**

Question No. 27

The range of the function $f(x) = 1 - \frac{3}{2+x}$ is

- $\mathbb{R} \setminus \{0\}$
- $\mathbb{R} \setminus \{3\}$
- $\mathbb{R} \setminus \{1\}$
- ● $\mathbb{R} \setminus \{-2\}$

D

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Let a and b be nonzero real numbers. Find the inverse of the function $f(x) = \frac{a+bx}{b-ax}$.

- $f^{-1}(x) = \frac{ax+b}{bx-a}$
- $f^{-1}(x) = \frac{bx-a}{ax-b}$,
- $f^{-1}(x) = \frac{bx-a}{ax+b}$
- $f^{-1}(x) = \frac{bx+a}{ax+b}$

C

Question No. 2

Let $a \in \mathbb{R}$. If the solution set of the inequality $|4x-8|+a>0$ is $(-\infty, 2)\cup(2, +\infty)$ then

- $a = 1$
- $a = 0$
- $a = 2$
- $a = -1$

B

Total questions in exam: 40 | Answered: 14

Question No. 28

Factoring $8x^3 - y^3$ gives

- $2x^3 - y^3$
- $(2x-y)(x^2 - 2xy + y^2)$
- $(2x-y)(4x^2 + 2xy + y^2)$
- $(2x+y)(x^2 + 2xy + y^2)$

Question No. 36

The function $f(x)$ is constant on an interval I if for $x_1, x_2 \in I$,

- if $x_1 < x_2$, then $f(x_1) < f(x_2)$,
- if $x_1 \neq x_2$, then $f(x_1) = f(x_2)$,
- if $x_1 < x_2$, then $f(x_1) > f(x_2)$,
- if $x_1 > x_2$, then $f(x_1) > f(x_2)$,

B

Save & Next

Total questions in exam: **40** | Answered: **12**

Question No. 30

The supplement of the angle 20° is:

- ○ 70°
- ○ 80°
- ○ 180°
- ○ 160°

A

160°

A

Question No. 26

Let a and b be nonzero real numbers. Find the inverse of the function $f(x) = \frac{a+bx}{b-ax}$.

- $f^{-1}(x) = \frac{ax+b}{bx-a}$
- $f^{-1}(x) = \frac{bx-a}{ax-b}$
- $f^{-1}(x) = \frac{bx-a}{ax+b}$
- $f^{-1}(x) = \frac{bx+a}{ax+b}$

C

Question No. 2

Let $a \in \mathbb{R}$. If the solution set of the inequality $|4x-8|+a>0$ is $(-\infty, 2) \cup (2, +\infty)$ then

- $a = 1$
- $a = 0$
- $a = 2$
- $a = -1$

Math

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Total questions in exam: 40 | Answered: 0

Question No. 39

The supplement of the angle $50°$ is:

- $50°$
- $150°$
- $130°$
- $40°$

C

Question No. 39

The equation $y = \log_a x$ is equivalent to the equation

- $x = y^a$
- $x = a^y$
- $y = x^a$
- $y = a^x$

B

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Question No. 39

Use set notation, and write the elements belonging to the set {x|x is a natural number less than 3}

- Ø
- {0}
- {1,2}
- {1,2,3}

C

Question No.

Suppose $a, b \in \mathbb{R}$ and $b > 0$. The solution of the inequality $0 < |x - a| < b$ is

- $(a - b, a) \cup (a, a + b)$
- $(a - b, a) \cup (a, b)$
- $(-b, a) \cup (a, a + b)$
- $(a - b, a] \cup (a, b)$

A

$$f(x) = \begin{cases} \dfrac{1}{x-1} & \text{if } x \neq 1 \\ 1 & \text{if } x = 1 \end{cases} \quad \text{then } \lim_{x \to 1} f(x) \text{ is}$$

- 2
- -2
- 3
- 1

Question No. 9

Evaluate $\lim\limits_{x \to 2} \dfrac{x-2}{|x-2|} =$

- ○ -2
- ○ 0
- ○ 2
- ○ Does not exist

D

Total questions in exam: **40** | Answered: **10**

Question No. 37

If $f(x)$ is a polynomial such that $f(2) = 3$ then the remainder of the division $f(x) \div (x - 2)$ equals:

- ○ 2
- ○ -2
- ○ 3
- ○ -3

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Question No. 40

The graph of $f(x) = -\left(\dfrac{1}{2}\right)^x$ is

○ Increasing
○ Constant
○ Decreasing
○ Decreasing and Increasing

C

Question No. 27

If $f(x) = -\dfrac{1}{3}x + 1$, the domain of $f^{-1}(x)$ is

- $[-3,1)$
- $[-\dfrac{1}{3},1)$
- $[0,\infty)$
- all real numbers

D

Question No. 23

The line through the point (-1,-3) with slope equal to zero is

- $x = -3$
- $x = -1$
- $y = -3$
- $y = -1$

C

Total questions in exam: **40** | Answered: **0**

Question No. 11

If x+a is a factor of the polynomial f(x) then

- $f(-a) = 0$
- $f(a) = -a$
- $f(-a) \neq 0$
- $f(a) = 0$

A

Question No. 22

Let $a \in \mathbb{R}$. Give the condition on a that makes the relation $F = \{(-1,1), (2,1), (a,3), (-2,a)\}$ a functio

- $a \in \{-1, -2, 1, 2, 3\}$
- $a \in \mathbb{R} \backslash \{1,3\}$
- $a \in \mathbb{R}$
- $a \in \mathbb{R} \backslash \{-1, 2, -2\}$

Save & Next المطر والتالي

Question No. 23

Simplify $\frac{1}{9}\left(\frac{12}{4}m - \frac{9}{2}n - 27\right)$

- $\frac{m}{15} - \frac{n}{6} - 9$
- $12m - 3n - 9$
- $\frac{1}{3}m - \frac{n}{2} - 3$
- 27

C

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Question No. 10

Let $f(x) = x^2 + c$ and $g(x) = x$, give the value of c such that $f(x+1) = xg(x) + 2x$.

- ○ $c = 0$
- ○ $c = 1$
- ○ $c = 4$
- ○ $c = -1$

A

Question No. 4

Find $2f(x) - 3g(x)$, where $f(x) = x^2 + 2x - 1$ and $g(x) = 2x - 4$.

- $2x^2 - 2x - 14$
- $-3x^2 - 2x - 1$
- $-3x^2 - 2x - 7$
- $2x^2 - 2x + 10$

D

Total questions in exam: **40** | Answered: **0**

Question No. 7

The complement of the angle 65° is:

○ 25°

○ 115°

○ 125°

○ 35°

A

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Question No. 3

Evaluate $\lim_{x \to \infty} (x^4 - x^2 + x - 4) =$

○ -4

○ 4

○ 0

○ ∞

D

Question No. 15

Solve the inequality $|x^2 - 5x + 4| \leq 0$.

- $S = (1, +\infty)$
- $S = \{1, 4\}$
- $S = (1, 4)$
- $S = [4, +\infty)$

B

Question No. 6

Use the quadratic formula to solve this equation:

$$8x^2 = 6x - 1$$

- $x = \{4, \frac{1}{2}\}$
- $x = \{-\frac{1}{2}, \frac{1}{4}\}$
- $x = \{\frac{1}{2}, \frac{1}{4}\}$
- $x = \{2, \frac{1}{4}\}$

C

Total questions in exam: **40** | Answered: 0

Question No. 14

The range of the function $f(x) = -x^2 + 1$ is

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

B

Question No. 16

Compute the product $(x-2)(x-3)$

- $x^2 + 5x + 6$
- $x^2 - 5x - 6$
- $x^2 - 6x + 5$
- $x^2 - 5x + 6$

D

Total questions in exam: **40** | Answered: 0

Question No. 9

If θ is an acute angle in a right triangle, then $\tan\theta =$

○ $\dfrac{\text{opposite}}{\text{hypotenuse}}$

○ $\dfrac{\text{opposite}}{\text{adjacent}}$

○ $\dfrac{\text{adjacent}}{\text{opposite}}$

○ $\dfrac{\text{adjacent}}{\text{hypotenuse}}$

B

Total questions in exam: 40 | Answered: 0

Question No. 29

If $f(x)$ is a polynomial such that the remainder of the division $f(x) \div (x + 4)$ equals 10 then

○ $f(10) = -4$

○ $f(-4) = 10$

○ $f(4) = 10$

○ $f(10) = 4$

B

Question No. 8

$\csc\theta =$

- ○ $\dfrac{1}{\cos\theta}$

- ○ $\dfrac{\cos\theta}{\sin\theta}$

- ○ $\dfrac{1}{\sin\theta}$

- ○ $\dfrac{\sin\theta}{\cos\theta}$

C

Question No. 5

The solution set of the equation $7(2x - 1) = 9 + 14x$ is

- ○ 1
- ○ $\emptyset$
- ○ $\{1,2\}$
- ○ $\{5\}$

B

Question No. 24

The equation $y = \log_2(3x)$ can be written as

- $x = \dfrac{2^y}{3}$
- $y = \dfrac{2^x}{3}$
- $y = 3^x$
- $x = 2^y$

A

Total questions in exam: **40** | Answered: **0**

Question No. 26

Which of the following functions is not one-to-one

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

C

Question No. 25

Find the quotient $\dfrac{6x^2}{2\,x^5} \div \dfrac{3x}{x^4}$, where $x \neq 0$

○ $\dfrac{1}{3}$

○ 1

○ $\dfrac{1}{2}$

○ -1

B

Total questions in exam: **40** | Answered: **0**

Question No. 30

Solve $1 < 7 - x < 10$

○ (-6,-3)
○ (-3,6)
◉ (-6,3)
○ (3,6)

B

Question No. 23

Evaluate: $|-12 + (5 - 2)|$

○ 9
○ 6
○ -3
○ 4

Question No. 28

If $\theta = 90°$ then θ is called

- an obtuse angle
- a straight angle
- a right angle
- an acute angle

C

Question No. 37

If $\sin \theta = \frac{4}{5}$ then $\cos \theta =$,where $0° < \vartheta < 90°$

- $\frac{4}{5}$
- $\frac{3}{5}$
- $\frac{5}{4}$
- $\frac{5}{3}$

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B

Evaluate $\lim\limits_{x \to 9} \dfrac{\sqrt{x} - 3}{x - 9} =$

○ $-\dfrac{1}{4}$

○ $-\dfrac{1}{6}$

○ $\dfrac{1}{2}$

○ $\dfrac{1}{6}$

D

Total questions in exam: 40 | Answered: 0

Question No. 38

The solution set of the equation $\log_2 x + \log_2(2x - 1) = 2\log_2(2 - x)$ is

- ○ {1,−4}
- ○ {1}
- ○ {4,−1}
- ○ φ

B

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Question No. 39

The supplement of the angle 50° is:

- 50°
- 150°
- 130°
- 40°

C

Question No. 40

The graph of $f(x) = 3^x$ is

- ○ Increasing
- ○ Constant
- ○ Decreasing and Increasing
- ○ Decreasing

A

Question No. 36

The solution set of the equation $(\sqrt{2})^{3-5x} = 4^{a+x}$ is

- $\{\frac{1}{2} - \frac{1}{6}a\}$
- $\{\frac{3}{2} - \frac{2}{7}a\}$
- $\{\frac{1}{3} - \frac{4}{9}a\}$
- $\{3 + \frac{4}{9}a\}$

C

Question No. 33

Give the slope of the line $4y - 8x + 28 = 0$

- ○ -2
- ○ -7
- ○ 2
- ○ 7

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Question No. 32

The solution set of the equation $2 \log_2 x - \log_2(4x + 5) = 0$ is

- {5}
- {-1.5}
- ∅
- {-1}

A

Save & Next بعدی ذخیره

Question No. 34

Evaluate $\lim\limits_{x \to 1^+} \dfrac{x^2 - 1}{|x - 1|}$

- ⚪ 2
- ⚪ 6
- ⚪ -2
- ⚪ 1

A

Question No. 4

What are the factors of this quadratic equation? $8x^2 - 6x - 5 = 0$

- ○ $(4x - 5)(2x + 1)$
- ○ $(8x + 5)(x - 1)$
- ○ $(4x - 1)(2x + 5)$
- ○ $(x + 1)(8x - 5)$

A

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Question No. 11

If $\sin \theta = \frac{4}{5}$ then $\cot \theta =$,where $0°<\vartheta<90°$

- ◯ $\frac{4}{3}$
- ◯ $\frac{3}{5}$
- ◯ $\frac{5}{3}$
- ◯ $\frac{3}{4}$

D

Save & Next حفظ والتالي

Question No. 11

If $\sin \theta = \frac{4}{5}$ then $\cot \theta =$,where $0°<\vartheta<90°$

Question No. 39

If $\sin \theta = \dfrac{4}{5}$ then $\cot \theta =$

○ $\dfrac{3}{4}$

○ $\dfrac{4}{3}$

○ $\dfrac{5}{3}$

○ $\dfrac{3}{5}$

A

Question No. 22

Evaluate $\displaystyle\lim_{x \to \infty} \frac{x^2 - 2}{x - 1} =$

- ○ -1
- ○ 0
- ○ 1
- ○ ∞

D

Question No. 16

Simplify $\left(\dfrac{-4n^6m^4}{m^2}\right)^{1/2}$ where $m \neq 0$

- $\dfrac{1}{8n^9m^3}$

- $-8n^9m^3$

- $-\dfrac{1}{8n^9m^3}$

- Is not a real number

D

Evaluate the expression $\dfrac{-(-3)+(-5)^2}{2(-8)-3(-3)}$

- ○ 4
- ○ $-\dfrac{28}{25}$
- ○ -4
- ○ $\dfrac{28}{25}$

C

Question No. 26

The inverse of F = { (-3,3), (0,0), (4,2), (1,5) } is

- G = { (-3,-3), (0,0), (4,-2), (1,-5) }
- G = { (3,3), (0,0), (-4,2), (-1,5) }
- G = { (3,3), (0,0), (2,4), (1,5) }
- G = { (3,-3), (0,0), (2,4), (5,1) }

D

Question No. 34

Find the sum $\dfrac{3}{2y} - \dfrac{5}{2y}$

- $\dfrac{1}{y}$
- $\dfrac{1}{4y}$
- $-\dfrac{1}{y}$
- $\dfrac{11}{4y^2}$

C

Question No. 23

The line through the point (-1,-3) with slope equal to zero is

- ○ x = -3
- ○ x = -1
- ○ y = -3
- ○ y = -1

C

If $f(x) = x^3 + 2x^2 - 1$ then $f(a^4) =$

- $a^7 + 2a^6 - 1$
- $a + 2a^{-1} - 1$
- $a^{12} + 2a^8 - 1$
- $a^9 - 1$

C

Total questions in exam: **40** | Answered: **23**

Question No. 24

Let $x \in \mathbb{Z}$. Simplify the following expression $a = 3i^{132x^2 + 4x - 3}$

- ○ $a = 3i$
- ○ $a = -3i$
- ○ $a = -3$
- ○ $a = 3$

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Question No. 8

The expression xyz can be classified as a

- monomial
- binomial
- none of these
- trinomial

A

Question No. 8

Evaluate $\lim\limits_{x \to -1} \dfrac{3x^4 + x + 1}{x + 4} =$

- ⭘ -4
- ⭘ 3
- ⭘ 1
- ⭘ 0

Question No. 11

Factor : $5x^2 - tx^2 - 5z + tz$

- ○ $(x^2 - z)(5 - t)$
- ○ $(x^2 - z)(5 + t)$
- ○ $(x^2 + z)(5 + t)$
- ○ $(x^2 + z)(5 - t)$

A
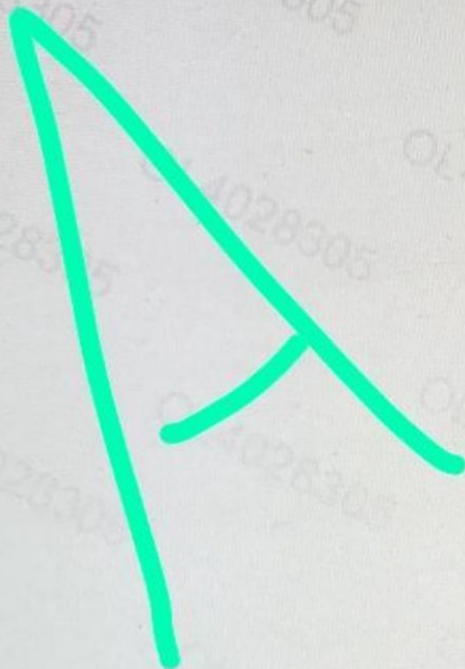
Question No. 6

Simplify $\left(x^{\frac{1}{2}} - 3\right)\left(x^{\frac{1}{2}} + 3\right)$

○ x − 9
○ x + 9
○ x − 3
○ x + 3

A

Question No. 23

Let $f(x) = -\frac{3}{2}x + 4$, find the value of a such that $f(2a) = 7$.

- $a = 0$.
- $a = 1$.
- $a = -1$.
- $a = 2$.
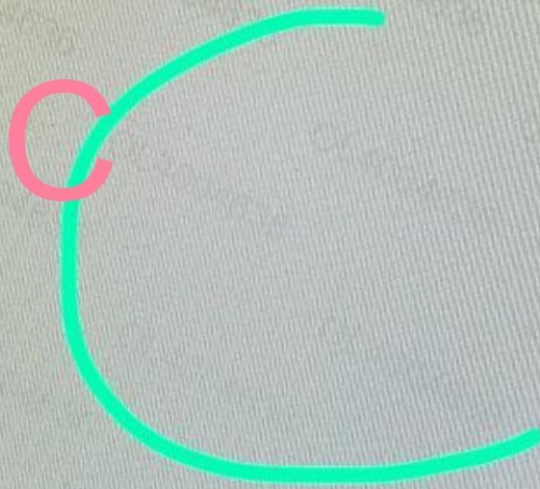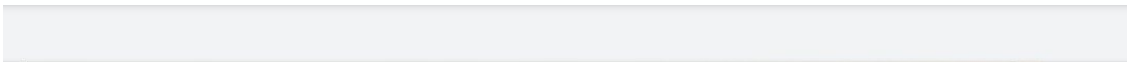
Factor. $9 - 6cd + c^2d^2$

- $(3+cd)(3-cd)$
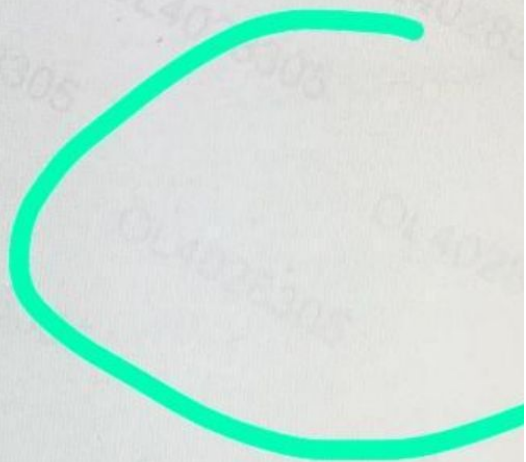- $(3+cd)(cd-3)$
- $(3-cd)^2$
- $(3+cd)^2$

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Total questions in exam: **40** | Answered: **0**

Question No. 7

The degree of the polynomial $5x^2 + 3x - 52$ is

○ 5

○ 3

○ 2

○ 52

Question No. 9

If $f(x)$ is a polynomial such that $f(5) = -7$ then the remainder of the
$f(x) \div (x - 5)$ equals:

○ 5

○ -5

○ 7

○ -7
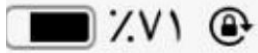
MKCL OES

Total questions in exam: **40** | Answered: **0**

Question No. 3

The solution set of $-2 \leq 3 - 5x \leq 18$ is

- $(-\infty, 1)$
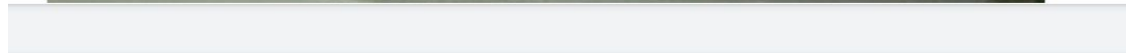- $(-3, \infty)$
- $(-3, 1)$
- $[-3, 1]$

D

MKCL OES

Total questions in exam: **40** | Answered: **0**

Question No. 5

The horizontal asymptote to the graph of $f(x) = 3^{x-1} + 2$.

- ○ $y = 2$
- ○ $x = -2$
- ○ $y = 3$
- ○ $y = -2$

A

Use the square root property to solve this quadratic equation

$$x^2 + 20 = 4$$

- ○ $\pm 4i$
- ○ $\sqrt{16}$
- ○ -4
- ○ $\pm\sqrt{24}$

A

Question No. 25

Given that $f(x) = \log_{\frac{1}{2}}(x + 2)$, then $f(2) =$

- ○ $\frac{1}{4}$
- ○ $\frac{1}{2}$
- ○ 2
- ○ -2

D

Question No. 25

The solution set of $-27x = x^3 - 12x^2$ is

- $\{0, 3, -9\}$
- $\{0, 3, 9\}$
- $\{3, 9\}$
- $\{-3, 9\}$

B

D

Question No. 2

The solution of the equation $2^x = 3^{2x-1}$ is

○ $\dfrac{\ln 2}{2\ln 3 - \ln 2}$

○ $\dfrac{\ln 2}{\ln 2 - 2\ln 3}$

○ $\dfrac{\ln 3}{\ln 2 - 2\ln 3}$

○ $\dfrac{\ln 3}{2\ln 3 - \ln 2}$

C?

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Total questions in exam 40 | Answered 5

Question No. 8

The product $z(1 + i)$ is a real number if

○ $z \in \mathbb{R}$.

○ z is the complex conjugate of $1+i$.

○ z is a pure imaginary number.

○ $z = i$.

B

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Question No. 1

The solution of the equation $\ln(3x) = 2$ is

○ e^2

○ $\dfrac{e^3}{2}$

○ $3e^2$

○ $\dfrac{e^2}{3}$

D

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Question No. 12

Let a be an integer. Give all values of a such that the function F is a one-to-one function.

$$F = \{(7, -1), (5, 1 - a), (0, 5), (-2, a), (1, 3)\}$$

○ $a \in \mathbb{R}\backslash\{-1, 5, 3, 2\}$

○ $a \in \mathbb{R}\backslash\{-1, 5, 3, 2, -4, -2\}$

○ $a \in \mathbb{R}\backslash\{5, 3, 2\}$

◉ $a \in \{1, 5, -2\}$

B

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Question No. 15

The graph of $f(x) = -3x^2 + x + 4$ is

- ○ Open left
- ○ Open right
- ○ Open down
- ○ Open up
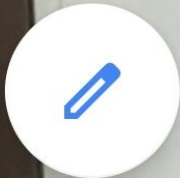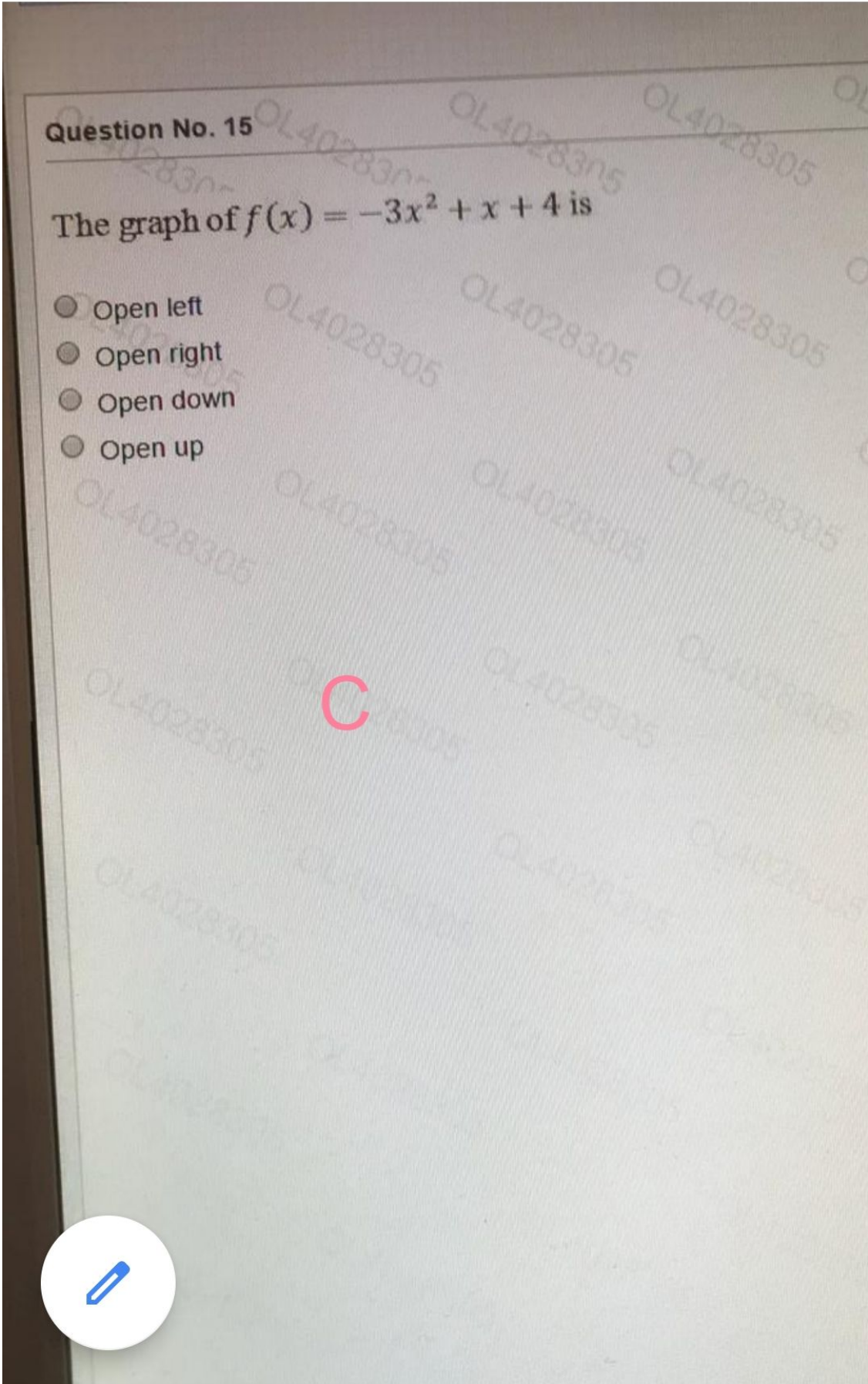
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Math_F1

Total questions in exam: **40** | Answered: **17**

Question No. 18

Which of the following is a pair of inverse functions?

- $f(x) = 2x - 1$, where $x \in \mathbb{R}$, and $g(x) = x + \frac{1}{2}$, where $x \in \mathbb{R}$.
- $f(x) = \sqrt{3 + x}$, where $x \in [-3, \infty)$, and $g(x) = x^2 - 3$, where $x \in [0, \infty)$.
- $f(x) = x$, where $x \in \mathbb{R}$, and $g(x) = -x$, where $x \in \mathbb{R}$.
- $f(x) = \sqrt{3 + x}$, where $x \in [-3, \infty)$, and $g(x) = x^2 + 3$, where $x \in [0, \infty)$.

B

HP Compaq LE1711

Total questions in exam: **40** | Answered: **5**

Question No. 7

Math_FT_Sem1_20

Let $a \in \mathbb{R}$ and $f(x) = \log_{a-2}(x+1) - a$. Give the condition on a such that $f(x)$ is increasing.

- $a \in [3, \infty)$
- $a \in (3, \infty)$
- $a \in (-\infty, 3)$
- $a \in (1, 3)$

B

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Question No. 2

Math_FT_Sem1_

Suppose $a \in \mathbb{R}$. Give the value of a such that the equation $|2x + 3| = |x + a|$ has one solution.

- $a = -\frac{2}{3}$
- $a = -\frac{3}{2}$
- $a = \frac{2}{3}$
- $a = \frac{3}{2}$

D

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Question No. 24

If x-2 is a factor of the polynomial f(x) then

○ $f(-2) = 0$

○ $f(2) = 0$

○ $f(0) = -2$

○ $f(0) = 2$

B

Question No. 20

The solution set of the equation $3(x + 3) = 3x - 9$ is

- ○ the set of real numbers
- ○ {2,3}
- ○ 1
- ○ ∅

D

Question No. 3

If x-4 is a factor of the polynomial f(x) then

- $f(-4) = 0$
- $f(0) = 4$
- $f(4) = 0$
- $f(0) = -4$

C

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Total questions in exam: **40** | Answered: **4**

Question No. 5

Let f be the one-to-one function defined by this set of ordered pairs $\{(-3,2),\ (4,5),(7,4),(10,19)\}$.
Then $f^{-1}(5) =$

○ 4

○ 5

○ $\dfrac{1}{5}$

○ $\dfrac{1}{4}$

A

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Question No. 7

The horizontal asymptote to the graph of $f(x) = 2^x - 3$.

- ○ y = -3
- ○ x = -2
- ○ y = 3
- ○ x = 2

A

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Question No. 2

Evaluate $\lim\limits_{x \to 1} \left(x^3 + x - 6\right) =$

- ⦿ -4
- ◯ 4
- ◯ 0
- ◯ -6

A

Question No. 16

Evaluate $\lim\limits_{x \to -3} \dfrac{x^2 + 7x + 12}{x + 3} =$

- ○ 4
- ○ 1
- ○ -3
- ○ 0

B

Question No. 26

$x \in \mathbb{R}$ and z be a complex number. Give the value of x that makes z a pure imaginary number.

$$z = (3x - \sqrt{5}) + (x+1)i - 2$$

- $x = \dfrac{2-\sqrt{5}}{3}$
- $x = -\dfrac{\sqrt{5}}{3}$
- $x = \dfrac{2+\sqrt{5}}{3}$
- $x = \dfrac{\sqrt{5}}{3}$

Total questions in exam: **40** | Answered: **0**

Question No. 16

Question No. 17

The domain of the function $f(x) = e^{x^2 - 3x + 1} - 2$ is:

- ○ $\mathbb{R}$
- ○ $(0, \infty)$
- ○ $(-1, \infty)$
- ○ $(-\infty, 0)$

A

Total questions in exam: 40 | Answered: 0

Question No. 21

Let U = {0,1, 2, 3, 4, 5, 6, 7,9}, and A = {1, 3, 5, 7} the complement of A is

- {1, 3, 5, 7}
- {0,2, 4, 6,9}
- ∅
- {1, 2, 3, 4, 5, 6, 7}

B

Question No. 23

Evaluate $\lim\limits_{x \to -3} \dfrac{|x+3|}{x+3}$

○ 0

○ 2

○ 1

○ Does not exist

D

Question No. 18

The function has an inverse if

- None of these answers
- doesn't satisfy the horizontal line test
- it is one-to-one
- it is quadratic

C

Evaluate $\lim\limits_{x \to -\infty} \dfrac{x+5}{2x+3} =$

○ $\dfrac{5}{3}$

○ 0

○ $\dfrac{1}{2}$

○ ∞

C

Question No. 22

The function $f(x) = \begin{cases} x^4 & \text{if } x \leq 1 \\ k - x^4 & \text{if } x > 1 \end{cases}$ is continuous if

- ⊙ k=-1
- ⊙ k=1
- ⊙ k=0
- ⊙ k=2

D

Question No. 15

If $p(x)=\sqrt{x+3}$ and $q(x)=\sqrt{x-4}$. Determine the domain of $(p\cdot q)(x)$.

- $x \in (-\infty, -3) \cup (4, \infty)$
- $x \in [-3, 4]$
- $x \in [4, \infty)$
- $x \in (-3, 4)$

C

Question No. 4

If $f(x) = 1 - \sqrt{x+2}$, then the domain of $f^{-1}(x)$ is

- $(-\infty, \infty)$
- $[1, \infty)$
- $[-2, \infty)$
- $(-\infty, 1]$

Question No. 2

The solution set of the equation $12(x-2)=4-2x$ is

- -2
- 0
- {2,-2}
- {2}

D

Total questions in exam: **40** | Answered: 0

Question No. 1

Perform the indicated operations $a\,b(a^{-1} - b^{-1})$,where $a \neq 0,\ b \neq 0$

○ $b - a$

○ $\dfrac{1}{b} - \dfrac{1}{a}$

○ 0

○ $a - b$

A

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Question No. 8

Let $U=\{1,2,3,4,5,6,7\}$, $A=\{1,3,5,7\}$, and $B=\{3,4,6\}$. Find $A \cup B'$

○ $\{2,4,3\}$

○ $\{1,2,3,5,7\}$

○ $\{4, 6\}$

○ $\{1,2,3,4\}$

B

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Question No. 33

if $f(x) = \begin{cases} \dfrac{x^2-1}{x-1} & \text{if} & x \neq 1 \\ 1 & \text{if} & x = 1 \end{cases}$ then $\lim\limits_{x \to 1} f(x)$ is

- ○ -2
- ○ 2
- ○ 1
- ○ 3
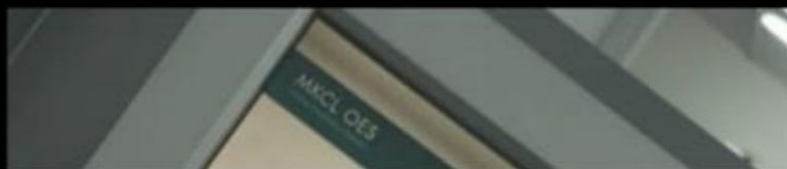
Total questions in exam: **40** | Answered: **5**

Question No. 6

Evaluate $\lim\limits_{x \to \infty} \left(x^3 + x - 3 \right) =$

- ○ 0
- ○ 3
- ○ −3
- ○ ∞

D

Question No. 33

The function $f(x) = \begin{cases} kx - k & \text{if} & x \geq 3 \\ 4 & \text{if} & x < 3 \end{cases}$ is continuous if

- $k = 2$
- $k = 3$
- $k = \dfrac{4}{3}$
- $k = 1$

A

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Total questions in exam: **40** | Answered: **1**

Question No. 2

If $x \in N$, then the value of i^{4x-1} is

- -1
- 1
- $-i$
- i

C

Question No. 3

Evaluate $\lim\limits_{x \to -\infty} \dfrac{x^3 + x^2 - 1}{x^2 - x - 1} =$

- ○ -1
- ○ 0
- ○ $-\infty$
- ○ 1

C

Question No. 18

The function $f(x) = -2x^2 + 4x + 1$ is equivalent to

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

B

Question No. 25

The inverse of $f(x) = \dfrac{\sqrt[3]{x} - 5}{2}$ is

D

○ $f^{-1}(x) = (2x + 5)$

○ $f^{-1}(x) = \dfrac{1}{3}(2x + 5)$

○ $f^{-1}(x) = 3(2x + 5)$

○ $f^{-1}(x) = (2x + 5)^3$

D

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Online Evaluation System

Total questions in exam: **40** | Answered: **0**

Question No. 1

Factoring $x^3 - 8y^3$ gives

Question No. 1

Factoring $x^3 - 8y^3$ gives

- $(x - 2y)(x^2 + 2xy + 4y^2)$
- $(x + 2y)(x^2 - 2xy + 4y^2)$
- $(x - 2y)(x^2 - 2xy + y^2)$
- $x^3 - 8y^3$

A

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