


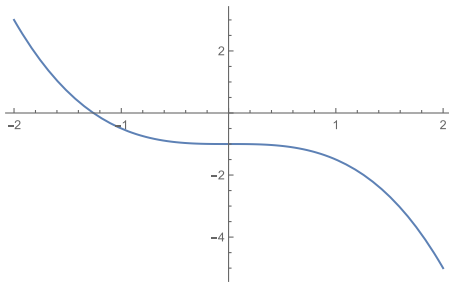
Egypt-Japan University of Science and Technology
Entrance Exam Sample (Undergraduate)

Programs: Computer Science and Information Technology – PharmD-Art and Design - BAS	Subject: Mathematics	
Academic Year: 2022/2023	No. of Pages: 3	
Exam Duration: 45 min	Exam Version:	
Student Name:	Student ID:	

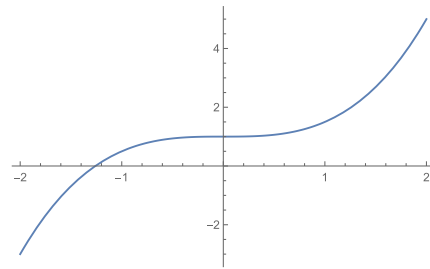
Choose the correct answer:

Question ① Which of the following graphs represents the function $y = \frac{1}{2}x - 1$?

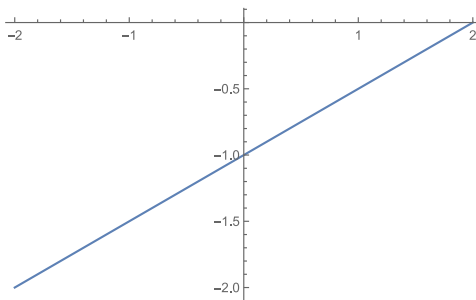
a)



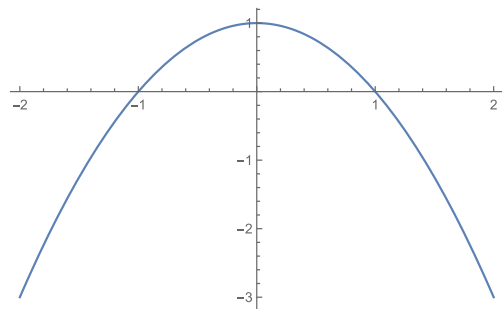
b)



c)



d)



Question ② An equation that does not represent a straight line is

- a) $y = -2$
- b) $x = 1$
- c) $y = -2x + 8$
- d) $y = \sqrt{x}$

Question ③ The first term in the binomial expansion of $(2a + 3b)^4$ is

- a) $8a^4$
- b) $16a^4$
- c) $81b^2$
- d) $12b^3$

Question ④ The sum of the terms of the infinite sequence $5, -\frac{10}{3}, \frac{20}{9}, -\frac{40}{27}, \dots$ equals

- a) $\frac{1}{3}$
 - b) 3
 - c) $\frac{1}{6}$
 - d) 1
-

Question 5 The value of m such that the quadratic equation $2x^2 - mx + 8 = 0$ has two equal roots is:

- a) 2
 - b) 4
 - c) -4
 - d) -8
-

Question 6 The line $y = 3x + 5$ is parallel to the line:

- a) $y = x + 5$
 - b) $y = x - 5$
 - c) $y = 3x - 1$
 - d) $y = -x + 5$
-

Question 7 The intersection between the two lines $y = x - 1$ and $y = 1 - x$ occurs at $x =$

- a) 1
 - b) 0
 - c) 3
 - d) -1
-

Question 8 If $y = (x^3 + 1)^4$, then $\frac{dy}{dx}$ is

- a) $4x^2(x^3 + 1)^3$
 - b) $12(x^3 + 1)^3$
 - c) $12x^2(x^3 + 1)^3$
 - d) $4(x^3 + 1)^3$
-

Question 9 In Question No. 8, $y'(0)$ is

- a) 0
 - b) 12
 - c) -5
 - d) 4
-

Question 10 A triangle ABC has side lengths $AB = 6$ cm, $AC = 5$ cm, and $BC = 4$ cm. Then $\cos(A)$ equals

- a) $\frac{4}{3}$

- b) $\frac{3}{4}$
 - c) $-\frac{3}{4}$
 - d) $-\frac{4}{3}$
-

Question 11 The sum of $1 + 3 + 9 + \dots + 243$ is:

- a) 360
 - b) 365
 - c) 363
 - d) 364
-

Question 12 The value of $\frac{(9)^{\frac{1}{2}}(6)^{-1}(2)^{\frac{3}{2}}}{(9)^{-2}(3)^2}$ is

- a) $-9\sqrt{2}$
 - b) $9\sqrt{2}$
 - c) $\frac{9}{\sqrt{2}}$
 - d) $-\frac{9}{\sqrt{2}}$
-

Question 13 The domain of the function $f(x) = \sqrt{2x - 1}$ is given by

- a) $[\frac{1}{2}, \infty[$
 - b) $[2, \infty[$
 - c) $] - 2, \infty[$
 - d) $[-\frac{1}{2}, \infty[$
-

Question 14 The algebraic solution of the equation $x^{\frac{3}{2}} = 27$ is

- a) {3}
 - b) {-3}
 - c) {9}
 - d) {-9}
-

Question 15 The set of solution of $|x - 1| \leq 2$ is

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

Best Wishes for all