*للحصول على أوراق عمل لجميع الصفوف وجميع المواد اضغط هنا

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* للحصول على أوراق عمل لجميع مواد الصف الثالث الإعدادي اضغط هنا

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* للحصول على جميع أوراق الصف الثالث الإعدادي في مادة رياضيات ولجميع الفصول, اضغط هنا

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Arab Republic of Egypt
Ministry of Education

E٣٣٠٩

Third Year Preparatory Exam for our Sons Abroad – Second Term 2018

Algebra & statistics — Time: 2 hours

مادة : الجبر والإحصاء بالإنجليزية — الصف الثالث الاعدادى — (الفصل الدراسى الثانى ٢٠١٨)

تنبيه هام : (يسلم الطالب ورقة امتحانيه باللغة العربية مع الورقة المترجمة). يسمح باستخدام الآلة الحاسبة

Answer the following questions:

First Question: Choose the correct answer:

1) The domain of the function n^{-1} where: $n(x) = \frac{x+4}{x-4}$ is.....

{ R or $R-\{-4\}$ or $R-\{4\}$ or $R-\{-4,4\}$ }

2) The probability of the impossible event is.....

{ Φ or zero or 1 or -1 }

3) The two straight lines $3x+5y=0$ and $5x-3y=0$ intersects at .....

{ the origin point or first quadrant or second quadrant or fourth quadrant }

4) If $A \subset B$ then $P(AUB)$ = ... ,

{ zero or $P(A)$ or $P(b)$ or $P(A \cap B)$ }

5) The set of zeroes of the function $f(x) = 9$ is

{ $\{9\}$ or $\{0\}$ or Φ or $R-\{9\}$ }

6) If the two straight lines $x+2y=4$ and $2x+ky=11$ are parallel then k =.....

{ 4 or 1 or -1 or 2 }

Second Question:

1) Find $n(x)$ in its simplest form showing its domain where $n(x) = \frac{x^2-2x}{x^2-4} + \frac{2x+6}{x^2+5x+6}$

2) By using the general formula solve the equation $x^2-5x+3=0$ where $\sqrt{13} \simeq 3.6$

Third Question:

1) Find the solution set the following two equations in $R \times R$

$x-5y=0$ and $x^2+y^2=26$

2) Find $n(x)$ in its simplest form showing its domain where $n(x) = \frac{x^2-3x+2}{x^2-1} \times \frac{x^2-4x-5}{3x-15}$

Fourth Question:

1) Find the solution set the following two equations in $R \times R$: $x+y=4$, $x-y=2$

2) If $n_1(x) = \frac{x}{x+2}$, $n_2(x) = \frac{2x}{2x+4}$ prove that $n_1 = n_2$

Fifth Question:

1) If A , B are two events in a sample space of a random experiment,

$P(A) = 0.3$. $P(B) = 0.6$. $P(A \cap B) = 0.2$ find:

First: $p(A \cup B)$ **Second:** $p(A^{\setminus})$

2) Represent graphically the curve of the function $f(x) = x^2+2x+3$ taking $x \in [-3, 1]$

from the graph find the solution set of the function $x^2+2x+3=0$

★(((انتهت الأسئلة)))★

Algebra 2018
- 2nd term -

Q.1 Choose:-

① $R - \{-4, 4\}$
② zero
③ the origin point.
④ $P(B)$
⑤ Φ
⑥ $k = 4$

Q.2 ①

$$n(x) = \frac{x^2 - 2x}{x^2 - 4} + \frac{2x + 6}{x^2 + 5x + 6}$$

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

$\therefore$ domain $= R - \{2, -2, -3\}$

Reduce:-

$$\therefore n(x) = \frac{x}{x+2} + \frac{2}{x+2}$$

$$\therefore n(x) = \frac{x+2}{x+2} = 1$$

② $x^2 - 5x + 3 = 0$, $\sqrt{13} \simeq 3.6$

$a = 1$, $b = -5$, $c = 3$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} = \frac{5 \pm \sqrt{25 - 4 \times 1 \times 3}}{2 \times 1}$$

$$= \frac{5 \pm \sqrt{25 - 12}}{2} = \frac{5 \pm \sqrt{13}}{2}$$

$$\frac{5 + \sqrt{13}}{2} = 4.3$$

$$\frac{5 - \sqrt{13}}{2} = 0.7$$

$\therefore$ $\therefore$ S.S $= \{4.3, 0.7\}$

Q.3 (1) $x - 5y = 0 \rightarrow (1)$, $x^2 + y^2 = 26 \rightarrow (2)$

From (1)

$\therefore \boxed{x = 5y}$ substitute in (2)

$\therefore (5y)^2 + y^2 = 26$

$\therefore 25y^2 + y^2 = 26$

$\therefore 26y^2 = 26$ $\quad\quad$ $\therefore y^2 = 1$

$\therefore y = 1$, $y = -1$

$x = 5y$, $x = 5y$

$x = 5$ $\quad\quad$ $x = -5$

$\therefore S.S = \{(5, 1), (-5, -1)\}$

(2)

$$n(x) = \frac{x^2 - 3x + 2}{x^2 - 1} \times \frac{x^2 - 4x - 5}{3x - 15}$$

$$\therefore n(x) = \frac{(x-2)(x-1)}{(x-1)(x+1)} \times \frac{(x-5)(x+1)}{3(x-5)}$$

$\therefore$ domain $= R - \{1, -1, 5\}$

after reducing :-

$$\therefore n(x) = \frac{x-2}{1} \times \frac{1}{3}$$

$$\therefore n(x) = \frac{x-2}{3}$$

Q.4 ① $x+y=4$ ①

$x-y=2$ ②

by adding ① + ②

$x+y=4$

$x-y=2$

$2x=6$ $\therefore \boxed{x=3}$

substituting in ①

$\therefore 3+y=4$ $\therefore y=4-3$

$\therefore \boxed{y=1}$

$\therefore S.S=\{(3,1)\}$

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② $n_1(x)=\frac{x}{x+2}$, $n_2(x)=\frac{2x}{2x+4}$

domain $= R-\{-2\}$

$n_1(x)=\frac{x}{x+2}$

$n_2(x)=\frac{2x}{2(x+2)}$

$\therefore$ domain $= R-\{-2\}$

$n_2(x)=\frac{x}{x+2}$

$\therefore$ domain of n_1 = domain of n_2

$\because n_1(x)=n_2(x)$

$\therefore n_1=n_2$ ✱

Q.5

① $P(A) = 0.3$

$P(B) = 0.6$

$P(A \cap B) = 0.2$

$P(A \cup B) = P(A) + P(B) - P(A \cap B)$

$= 0.3 + 0.6 - 0.2$

$= 0.7$

$P(A') = 1 - P(A)$

$= 1 - 0.3$

$= 0.7$

② $F(x) = x^2 + 2x + 3 \quad , x \in [-3, 1]$

x	-3	-2	-1	0	1
F(x)	6	3	2	3	6

Vertex point $(-1, 2)$

Min Value = 2

eqn. of axis of symmetry is $x = -1$

From the graph:-

The curve doesn't intersect x-axis

$\therefore$ S.S = ϕ