Tryout bro!

Matematika dasar

No 1

Pandigital number defined as a number that possesses all 1-n digit, where n is the number of digits possessed by that number. For example, 132 is a pandigital-3 since it contains all digits from 1-3. Whereas 1432 is a pandigital-4. For $1 \leq x \leq 1000000$ how many x are pandigitals?

A. 720
B. 873
C. 971
D. 1231
E. 1431

Jawaban : B

No 2

$$\lim_{x->\infty} \sqrt{x^8 + x^4 + 3x^2 + 9} - \sqrt{x^8 + x^2 + 10} = ?$$

A. ∞
B. 0
C. 1
D. 1/2
E. 2

Jawaban : D

No 3

The equation $|x|^4 - 2|x|^2 - 35 = 0$ has two real zeros a & b.
What is the value of $a \times b$?

A. 35
B. -35
C. 5
D. -5
E. -7

Jawaban E

No 4

Suppose we define function f(x) such as
f(x) = x when x is odd
f(x) = 2x + 3 when x is even

For n = 100 what is the result of $\sum_{k=1}^{n} f(k)$?

A. 7750
B. 15500
C. 15450
D. 10050
E. 5050

Jawaban A

No 5

What is the sum of all x that satisfies the equation $2(\sin x)^2 + 3\sin x - 2 = 0$ for x in $0 \leq x \leq 12\pi$?

A. 31π
B. 33π

C. 43π
D. 66π
E. 90π

Jawaban D

No 6

If f(x) defined as the greatest integer less than x, for example f(3.2) = 3 and f(4.9) = 4, what are the maximum and minimum value of g(x) where $g(x) = 10 - f(x/2)$ and x in $-12 < x < 18$?

A. 16 and 2
B. 16 and 1
C. 15 and 2
D. 15 and 1
E. 17 and 2

Jawaban A

No 7

Suppose $f(x) = \log_2(x)$ for x = 2 and $f(x) = \log_2(2^{f(x-1)})$ for x > 2.
Where $\log_a m = c$ if and only if $a^c = m$
What is the value of $f(16) + f(8) + f(4)$?

A. 0
B. 28
C. 3
D. 9
E. 6

Jawaban C

No 8

If $x^6 + x^3 + 1 = 0$.

$$x^6 + \frac{1}{x^6} = ?$$

A. 3
B. 2
C. 1
D. 0
E. -1

Jawaban E

No 9

A Line with an equation of Ax + By = 0 will intersect the second line Ax + By = 5 when which condition met?

A. The gradient of the first line equals zero
B. B = 0
C. A = 0
D. A/B = 5
E. The two lines do not have intersection

Jawaban E

No 10

Two dices with each face of 0,1,2,3,4,5 are simultaneously thrown once. What is the probability that the product of the shown faces satisfies $|x - 12| - 2 < |x - 6|$? where x is the product of the two upward faces.

A. 9/36
B. 10/36

C. 11/36
D. 12/36
E. 13/36

Jawaban B

No 11

If a & b are real zeros of $2^{2x} - 40.2^{x} + 256 = 0.$
What is the value of a.b ?

A. 15
B. 40
C. 256
D. 8
E. -256

Jawaban A

No 12

If a,b,c,d,e,f,g is seven consecutive terms of a geometric sequence, and r is the ratio. What is the value of (a.b.c) x (b.c.d) x (c.d.e) x (d.e.f) x (e.f.g) ?

A. d^{15}
B. r^{15}
C. $(e - c)^{15}$
D. $a^{5}.\, r^{15}$
E. $a^{15}.\, r^{15}$

Jawaban A

No 13

If f'(x) is the first derivative of f(x), and given these data:
f(0) = 1, f(1) = 2, f(2) = 4, g(4) = 5, g(2) = 6, f'(1) = 5, f'(2) = 10, f'(6) = 7, f'(4) = 3, g'(2) = 4, g'(6) = 3, g'(4) = 9. If h(x) = f(g(x)). What is the value of h'(2) = ?

A. 3
B. 12
C. 28
D. 36
E. 40

Jawaban C

No 14

If $\lim_{n->\infty} 1 + x + x^2 + x^3 + x^4 + \ldots + x^n = 2$
What is the value of $\lim_{n->\infty} 1 + 2x + 3x^2 + 4x^3 + 5x^4 + \ldots = ?$

A. 0
B. 1
C. 2
D. 3
E. 4

Jawaban E

No 15

$(sin\ x - cos\ x)(1 + sin\ x\ cos\ x) = ?$

A. $sin^3 x$
B. $cos^3 x$
C. $sin^3 x + cos^3 x$
D. $sin^3 x - cos^3 x$

E. $cos^3 x - sin^3 x$

Jawaban D

Tryout bro!

Matematika IPA

No 1

In the expansion of $(a+b)^{20}$ what is the coefficient of $a^{15}.\,b^{5}$?
Note : suppose ${}_nC_k$ defined as the number of ways of taking k elements from n unique elements and ${}_nP_k$ is the permutations of k elements form n elements.

A. ${}_{20}C_5 \times {}_{20}C_{15}$
B. ${}_{20}P_{15}$
C. ${}_{20}C_{15}$
D. ${}_{20}P_{15} \times {}_{20}P_5$
E. ${}_{20}C_{15} \times {}_{15}C_5$

Jawaban C

No 2

$$\lim_{n->\infty} \sum_{k=1}^{n} \frac{2^k + 3^k + 5^k}{30^k} = ?$$

A. $(6+10+15)/(6\times 10\times 15)$
B. $1/6$
C. $1/3$
D. $(5+9+14)/(5\times 9\times 14)$
E. 0

Jawaban D

No 3

Let $pow(a, b) = a^b$. Suppose $U_n = pow(cos\ x, 2^n)$ and S_n denotes the sum of $U_1 + U_2 + \ldots + U_n$. What is the value of

$$\lim_{x->0} \frac{6 - S_6}{x^2}$$

A. 63
B. 31
C. 6
D. 0
E. 12

Jawaban A

No 4

$$4 \times \sum_{k=1}^{5} \int_0^k \sqrt{k^2 - x^2}\, dx = ?$$

A. 220π
B. 125π
C. 100π
D. 55π
E. 35π

Jawaban D

No 5

$$\int_{\pi/2}^{\pi} \sqrt{1-(tan\ x)^2+(tan\ x)^4-(tan\ x)^6+\ldots}\ dx = ?$$

A. -2
B. -1
C. 0
D. 1
E. 2

Jawaban B

No 6

A cube ABCD.EFGH in a vector-space has a side length of 4 units.
Let A (0,0,0), B (4,0,0), C (4,4,0), D (0, 4, 0), E (0,0,4), F (4,0,4), G (4,4,4), H (0,4,4), where (x,y,z) is a tuple of units in x-axis, y-axis, and z-axis.

Let $P(v, k-axis)$ the projected vector v in k-axis such that $P(u, x)$ is the projection of vector u in x-axis.
What is the length of vector $\vec{w}$ where $\vec{w} = P(\vec{AG}, x) + P(\vec{EC}, x)$?

A. 8
B. $8\sqrt{2}$
C. $16\sqrt{2}$
D. $16\sqrt{3}$
E. 16

Jawaban A

No 7

Let P is the set of all points whose distance from (2,2) is 3.

If all members of P are dilated by 4 with (1,1) as the center of dilation, and then followed by a reflection over x-axis.

What is the area circumscribed by all points in P ?

A. 16π
B. 36π
C. 64π
D. 144π
E. 256π

Jawaban D

No 8

Let $x(t) = 3(sin\ t)$ and $y(t) = 3(cos\ t)$ for $0 \leq t \leq 2\pi$. Let $F(x(t), y(t))$ is the resulting graphic from above equation.
For what value of c will the line y = mx + c be tangent to the graph of F at (3,4)?

A. 5
B. 16
C. 16/5
D. 25/4
E. 12

Jawaban D

No 9

Two roots of $4x^3 + 8x^2 + Kx - 18 = 0$ are equal numerically but opposite in sign.
Find the value of K.

A. -3
B. 3
C. -9
D. 9
E. -9/2

Jawaban C

No 10

Let $f(x) = x^2 + ax$ and $f(a) = f(b) = -b$. Find $a^3 - b^3$

A. -8
B. -12
C. 9
D. 8
E. 12

Jawaban C

No 11

Which value of m evenly divides $2^{16} - 1$?

A. 17
B. 23
C. 27
D. 33
E. 35

Jawaban A

No 12

Let a & b the real zeros of the equation :

$$x^2 + 3x + 2 = \frac{2}{x^2 + 3x + 3}$$

What is the value of a.b?

A.
B.
C.
D.
E.

Jawaban

Tryout bro!

TPA

No 1

What is the units digit in the standard decimal expansion of the number 725 ?
A. 1
B. 3
C. 5
D. 7
E. 9

Jawaban D

No 2

Working alone, pump A can empty a pool in 3 hours. Working alone, pump B can empty the same pool in 2 hours. Working together, how many minutes will it take pump A and pump B to empty the pool?
A. 72
B. 75
C. 84
D. 96
E. 108

Jawaban B

No 3

Jenny has 228 more marbles than Jack. If Bob gave each of them 133 marbles, she will have twice as many marbles as Jack. How many marbles does Jenny have? A. 95
B. 190
C. 228
D. 323
E. 456

Jawaban 456

No 4

If the area of a circle is 64, then the circumference of the circle is…
A. 8
B. 16
C. 32
D. 64
E. 128

Jawaban

No 5

If the diameter of a circle increases by 50 percent, by what percent will the area of the circle increase?
A. 25
B. 50
C. 100
D. 125
E. 225

Jawaban E

No 6

Which of the following is not a factor of 168?
A. 21
B. 24
C. 28
D. 32
E. 42

Jawaban D

No 7

The integers A, B, and C are consecutive and A < B < C. If $A^2 = C$, which of the following could be the value of A?
I. –1
II. 0
III. 2

A. I only
B. III only
C. I & II only
D. I & III only
E. I,II,III

Jawaban D

No 8

What is the sum of the five consecutive EVEN numbers whose average (arithmetic mean) is 12?
A. 48
B. 60
C. 72
D. 84
E. 96

Jawaban B

No 9

If the ratio of boys to girls in a class is 5 to 3, which of the following could not be the number of students in the class?
A. 32
B. 36
C. 40
D. 48
E. 52

Jawaban B

No 10

During October, a store had sales of $30,000. If this was a 20 percent increase over the September sales, what were the September sales?
A. 22,500
B. 24,000
C. 25,000
D. 27,000
E. 28,000

Jawaban C

No 11

Ed has 100 dollars more than Robert. After Ed spends twenty dollars on groceries, Ed has 5 times as much money as Robert. How much money does Robert have?
A. 20
B. 30
C. 40
D. 50

E. 120

Jawaban A

No 12

Gheri is n years old. Carl is 6 years younger than Gheri and 2 years older than Jean. What is the sum of the ages of all three?
A. 3n + 16
B. 3n + 4
C. 3n - 4
D. 3n - 8
E. 3n - 14

Jawaban E

No 13

It takes 6 people 6 days to do a job. How many days would it take 2 people working at the same rate to do the job?
A. 3
B. 6
C. 12
D. 16
E. 18

Jawaban E

No 14

A subway car passes an average of 3 stations every 10 minutes. At this rate, how many stations will it pass in one hour?
A. 7
B. 9

C. 17
D. 18
E. 19

Jawaban D