(A) $-1-2i$ (B) $-1+2i$ (C) $1+2i$ (D) $1-\frac{1}{2i}$

Solution:-

$$\text{let } z = -1-2i$$

$$-z = -(-1-2i)$$

$$= 1+2i$$

$$z+(-z) = \cancel{-1}\cancel{-2i}\cancel{+1}\cancel{+2i}$$

$$= 0+0i$$

Additive inverse of $-1-2i$ is $1+2i$

If $z = 4+3i$ then $|z| = \underline{\quad 5 \quad}$

(A) 4 (B) 5 (C) 6 (D) none of these

Solution:-

$$z = 4+3i$$

$$|z| = \sqrt{a^2+b^2}$$

Here $a=4$, $b=3$

$$= \sqrt{4^2+3^2}$$

$$= \sqrt{16+9}$$

$$= \sqrt{25}$$

$$= \pm 5$$

If $|A| = 5$ then value of $|A^t|$ is ......

(A) ± 5 (B) 5 (C) ... (D) cannot be determ...

Property:-

If all elements of corresponding rows and columns of square matrix A are interchanged, then determinant of resulting matrix is equal to $|A|$.

If $A = \begin{bmatrix} a_{11} & a_{12} & a_{13} \\ a_{21} & a_{22} & a_{23} \\ a_{31} & a_{32} & a_{33} \end{bmatrix}$

$$A^t = \begin{bmatrix} a_{11} & a_{21} & a_{31} \\ a_{12} & a_{22} & a_{32} \\ a_{13} & a_{23} & a_{33} \end{bmatrix}$$

then $|A| = |A^t|$

So $5 = 5$

$\vec{j} \cdot (\vec{k} \times \vec{i}) = \_\_\_\_\_\_$

(A) 0 (B) 2 (C) 1 ✓ (D) does not exist

Solution:-

$\vec{j} \cdot (\vec{k} \times \vec{i})$

$= \vec{j} \cdot (\vec{j})$ $\quad \because k \times i = j$

$j \cdot j = 1$

$= 1$

$\binom{4}{1} = \_\_\_\_\_\_$

(A) 0 (B) 1 (C) 2 (D) 4 ✓

Solution:-

$$\binom{n}{r} = \frac{n!}{r!(n-1)!}$$

$$\binom{4}{1} = \frac{4!}{1!(4-1)!} = \frac{4.3!}{1(3!)} = \frac{4.\cancel{3!}}{\cancel{3!}} = 4$$

$\frac{}{2}$ $\frac{}{3}$ $\frac{}{4}$ $\frac{}{5}$

(A) harmonic (B) geometric (C) arithmetic

(D) none of these.

Solution:-

$\frac{1}{2}, \frac{1}{3}, \frac{1}{4}, \frac{1}{5}$ ~~is harmonic~~

The reciprocal of sequence

$2, 3, 4, 5$

~~con~~ Here $a_1 = 2$, $a_2 = 3$, $a_3 = 4$, $a_4 = 5$

common difference $= 1$ so it is A.S

The sequence whose reciprocal is arithmetic sequence is called harmonic sequence.

Numbers of term in expansion of $(1+x)^{1/2}$ are ______

(A) 0 (B) 1 (C) 2 (D) infinite

The inverse of $f(x) = 2x-1$ is ______

(A) $\frac{x+1}{2}$ (B) $\frac{x+1}{2x}$ (C) $\frac{x-1}{2+x}$ (D) $\frac{y+1}{2}$

Solution:-

$f(x) = 2x - 1$

$f(x) = 2x - 1 = y$

$y = 2x - 1$

$\Rightarrow 2x = y + 1$

$x = \frac{y+1}{2}$

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

If $a = 2i-3j+4k$, $b = i+3j+2k$

$a.b =$ ....

(A) 9 (B) 15 (C) 1 (D) 0

Solution:-

$a.b = (2i-3j+4k).(i+3j+2k)$

$= (2)(i.i) - 9(j.j) + 8(k.k)$

$= 2(1) - 9(1) + 8(1)$

$= 2 - 9 + 8$

$= 1$ Ans

$\sin(-\alpha) =$ ....

(A) $-\cos\alpha$ (B) $-\sin\alpha$ (C) $\cos\alpha$ (D) $\sin\alpha$

Reason:

sin is not observe (−) sign

$\cos\left(\frac{\beta}{2}\right) =$ .... (A) $\sqrt{\frac{s(s-a)}{bc}}$

(B) $\sqrt{\frac{s(s-b)}{ac}}$ (C) $\sqrt{\frac{s(s-c)}{ab}}$ (D) $\sqrt{\frac{s(s-abc)}{bc}}$

Solution:-

Half angle formula.

$\cos\left(\frac{\beta}{2}\right) = \sqrt{\frac{s(s-b)}{ac}}$

$|a-ib| =$ ....

(A) $(a+ib)^2$ (B) $\sqrt{(a+b)^2}$ (C) $\sqrt{a^2+b^2}$

(D) $\sqrt{a^2-b^2}$

Ho

$= \sqrt{a^2 + (-b)^2}$

$= \sqrt{a^2 + b^2}$

Second term in
of $(1+2x)^{1/3}$ is

(A) $\frac{x}{2}$ (B) $\frac{2x}{3}$ (

Solution:-

$(1+x)^n = 1 + nx + \frac{n(n-1}{2!}$

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

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

The second term

The number of te
is ----

(A) $n+1$ (B) n (C)

~~for inequality~~ If $\vec{a}$,
perpendicular vectors,

(A) $\vec{a} \cdot \vec{b} = 0$, (B) $\vec{a} \times \vec{b} =$

(D) $\vec{a} \cdot \vec{b} = -1$

If two vectors a
to each other. If

product is zero

The multiplicative identity of a Complex number is ______

(A) $(0,1)$ (B) ✓ $(1,0)$ (C) $(1,1)$ (D) $(0,0)$

Solution:-

let $a+bi$ be any complex number and $c+di = 1+0i$ be unit complex number.

$$(a+bi)(1+0i) = a.1 - b.0 + (a.0 + b.1)i$$
$$= a+bi$$

multiplicative identity of complex number $1+0i$