

1.  $\vec{a}, \vec{b}, \vec{c}$

A  $\vec{a} = \lambda \vec{b} + \mu \vec{c} \quad (\lambda, \mu \in \mathbb{R})$

B  $\vec{a} = \lambda \vec{b} + \mu \vec{c} + \vec{0} \quad (\lambda, \mu \in \mathbb{R})$

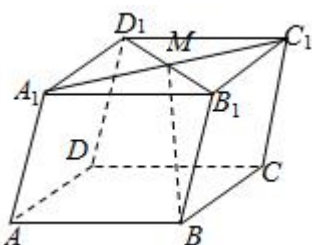
C  $\vec{a} = \lambda \vec{b} + \mu \vec{c} \quad (\lambda, \mu \in \mathbb{R})$

D  $\vec{a} = \lambda \vec{b} + \mu \vec{c} \quad (\lambda, \mu \in \mathbb{R})$

2.

$\vec{a} = \vec{b} + \vec{c} + \vec{d}, \vec{b} = \vec{c} + \vec{d} + \vec{e}, \vec{c} = \vec{d} + \vec{e} + \vec{f}, \vec{d} = \vec{e} + \vec{f} + \vec{g}$

$\vec{a} = \vec{b} + \vec{c} + \vec{d}$



A  $\vec{AM} = \frac{1}{2} \vec{A_1C_1} + \frac{1}{2} \vec{A_1A}$     B  $\vec{AM} = \frac{1}{2} \vec{A_1C_1} + \frac{1}{2} \vec{A_1B_1}$     C  $\vec{AM} = \frac{1}{2} \vec{A_1C_1} - \frac{1}{2} \vec{A_1A}$     D  $\vec{AM} = \frac{1}{2} \vec{A_1C_1} - \frac{1}{2} \vec{A_1B_1}$

3.

A  $|\vec{a} + \vec{b} + \vec{c}| = |\vec{a} + \vec{b} - \vec{c}|$

B  $|\vec{a} + \vec{b} + \vec{c}|^2 = |\vec{a}|^2 + |\vec{b}|^2 + |\vec{c}|^2$

C  $(\vec{a} + \vec{b} + \vec{c}) \cdot \vec{a} = 0$

D  $\vec{a} \cdot \vec{b} = \vec{b} \cdot \vec{a} = \vec{a} \cdot \vec{c}$

4.

$\vec{a} = \vec{b} + \vec{c} + \vec{d}$

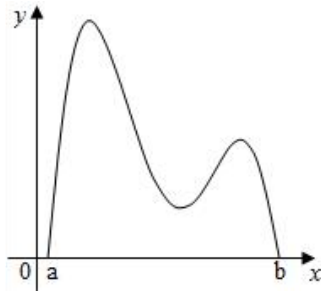
6.  $A(-3,4)$   $B(3,2)$

( )

A.  $(-1,1)$  B.  $(- , -1)$   $(1,+ )$  C.  $[-1,1]$  D.  $(- , -1)$   $[1,+ )$

7.  $[a,b]$  ( 2) ...

— — ... — ( )



A.  $\{2,3\}$

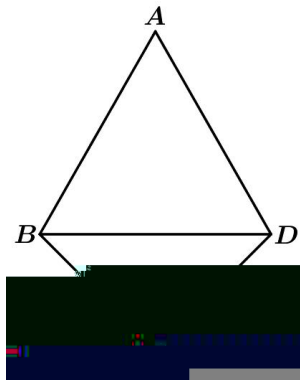
B.  $\{3,4\}$

C.  $\{2,3,4\}$

D.  $\{3,4,5\}$

8.  $\sin\left(\frac{\pi}{6}\right) = \frac{1}{2}$   $\cos\left(\frac{5\pi}{6}\right) = -\frac{\sqrt{3}}{2}$

— —  $\left[\frac{\pi}{6}, \frac{5\pi}{6}\right]$  ,



A  $\left[-\frac{5\sqrt{2}}{8}, \frac{\sqrt{2}}{8}\right]$

B  $\left[\frac{\sqrt{2}}{8}, \frac{5\sqrt{2}}{8}\right]$

C  $\left[0, \frac{\sqrt{2}}{8}\right]$

D  $\left[0, \frac{5\sqrt{2}}{8}\right]$

9.  $\vec{u} = (2,2,1)$ ,  $\vec{v} = (4,5,3)$

A  $\left(\frac{1}{3}, -\frac{2}{3}, \frac{2}{3}\right)$

B  $\left(-\frac{1}{3}, \frac{2}{3}, -\frac{2}{3}\right)$

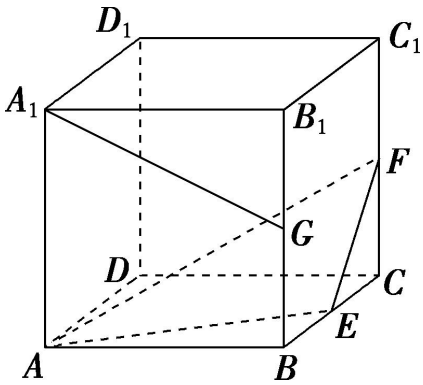
C  $\left(\frac{1}{2}, -1, 1\right)$

D  $\left(-\frac{1}{2}, 1, -1\right)$

10.  $\vec{a} = \vec{b} + \vec{c}$ ,  $\vec{b} = \vec{a} + \vec{c}$ ,  $\vec{c} = \vec{a} + \vec{b}$   $\{\vec{a}, \vec{b}, \vec{c}\}$

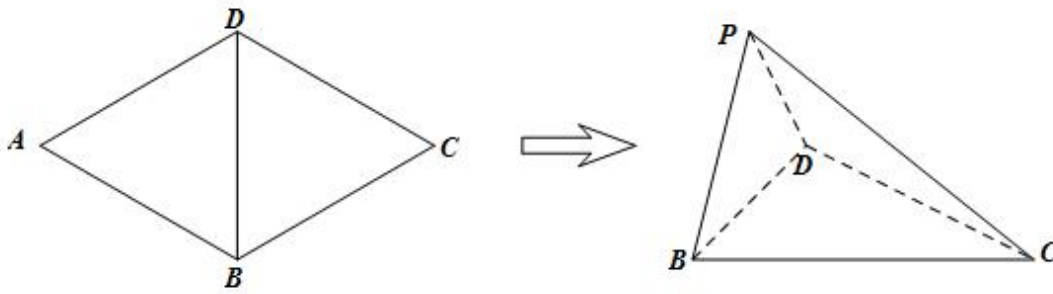
A { , , } B { , , } C { , , } D { , , + + }

11. - 1 1 1 1 1 1 1 1



A 1 B 1  
C  $\frac{9}{8}$  D

12. =2  $\angle = 60^\circ$  ABD BD PBD



A  $45^\circ$   
B  $\perp$   
C - -  $90^\circ = \sqrt{6}$   
D  $\sqrt{3}$ .

13.  $\vec{r}_1 = (4, 3), \vec{r}_2 = (1, 7), \vec{r}_1 \cdot \vec{r}_2 = \underline{\hspace{2cm}}$

14. 4 - -  

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15.  $\cos \alpha + \cos \beta = 2 \cos \gamma$   $\frac{2}{3}$

$\frac{1}{3}$

1

\_\_\_\_\_

16.

-

 $\sqrt{\quad}$  $\sqrt{\quad}$ 

-

\_\_\_\_\_

\_\_\_\_\_

17. ( 10 )

-

1

 $\frac{1}{-}$ 

-

(- 1 1)

—

18. A(- m - 3, 2) B(- 2m - 4, 4) C(- m, m) D(3, 3m + 2)

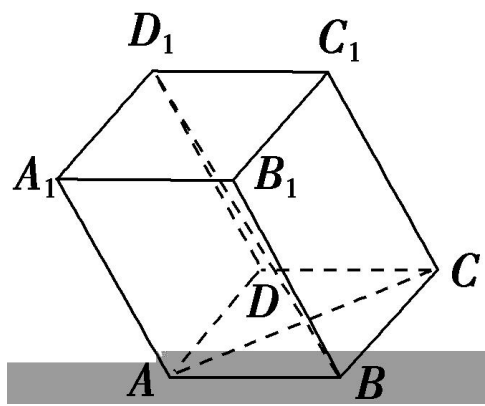
19.

- 1 1 1 1

1

1 1 120°.

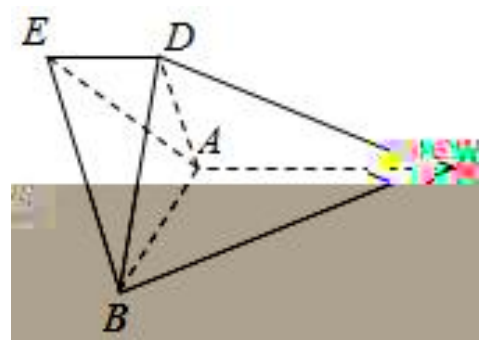
1 A<sub>1</sub> 2 1



20. ( )

$\frac{1}{2}$  1

1  
2 2 4



$\perp$  // =6 =2 =4

//

$\perp$

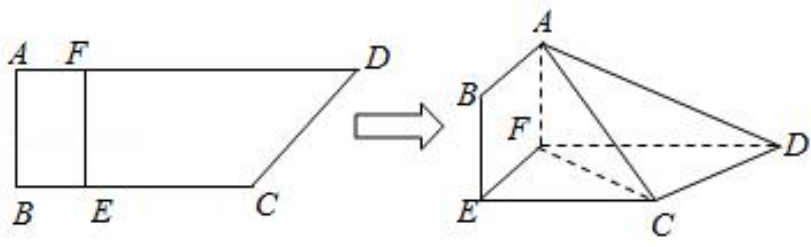
1 =1

$\overline{\quad} = \lambda \overline{\quad}$  //

$\lambda$

2 -

E AC D



22. 2020

1 1 1

1 1

1 1

1 1

1

1

1

1 1

2

1 1 1

1 1

1

1

