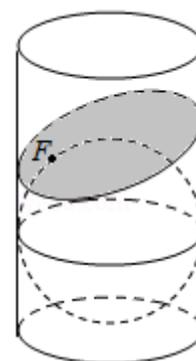


1. \bar{a} 1, 2, 3, \bar{b} $x^2 - 3x + 50$ $\bar{a} // \bar{b}$ x
 A 1 B 0 C 1 D 2
2. a_n a_3 a_7 10 a_6 7 d
 A 1 B 2 C 3 D 4
3. M 2 3 $x - 2y - 9 = 0$
 A $2x - y - 8 = 0$ B $x - 2y - 7 = 0$ C $x - 2y - 4 = 0$ D $x - 2y - 1 = 0$
4. a_n



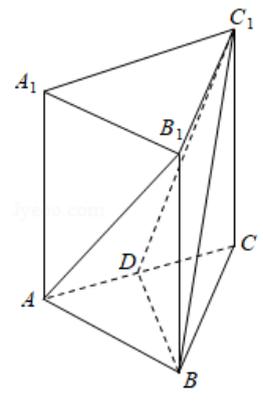
12. ABC A_1B_1C BC_1 AB_1 D AC E BCC_1B_1

A $\overline{DA} = \frac{1}{2} \overline{A_1A} + \overline{B_1A} + \overline{BC}$

B $DE \parallel$ ABB_1A_1 $E = \frac{\sqrt{2}}{2} AC$

C $AD = BC_1 = \frac{\sqrt{6}}{6}$

D $E = ACC_1A_1 = \frac{\sqrt{3}}{2} EB = E$



4 5 20 2 3 .

13. $x^2 - 4y = \underline{\hspace{2cm}}$

14. $S_n = \underline{\hspace{2cm}}$ $a_n = n$ $a_1 = a_2 = 3$ $a_3 = a_4 = 12$

$q = \underline{\hspace{2cm}}$ $S_6 = \underline{\hspace{2cm}}$

15. $C: x^2 + y^2 - 1 = 0$ $C: l: 3x + y - 12 = 0$ $\underline{\hspace{2cm}}$

$P: l = \underline{\hspace{2cm}}$ $P: C = \underline{\hspace{2cm}}$

16.

$A_k = x|x a_k = 2^k$ $a_{k-1} = 2^{k-1}$ $a_1 = 2^1$ $a_0 = 2^0$ $k \in \mathbf{N}$ $a_k = 1$ $a_0 = a_1 = a_{k-1} = 0 = 1$

$A_1 = 23$ $A_2 = 4567$ $A_4 = \underline{\hspace{2cm}}$

$f(x) = \frac{0}{1} x + \frac{a_0}{a_0} x + \frac{a_1}{a_1} x^2 + \frac{a_2}{a_2} x^3 + \frac{a_k}{a_k} x^k = 1 + x + x^2 + x^3 + \dots + x^k$

$x|f(x) = 1 + x + A_k$ $c_n = \underline{\hspace{2cm}}$ $c_n = \underline{\hspace{2cm}}$

6 70 12 17 10

17. $10 = a_n = a_1 + 2 + a_3 + a_1 + a_7$

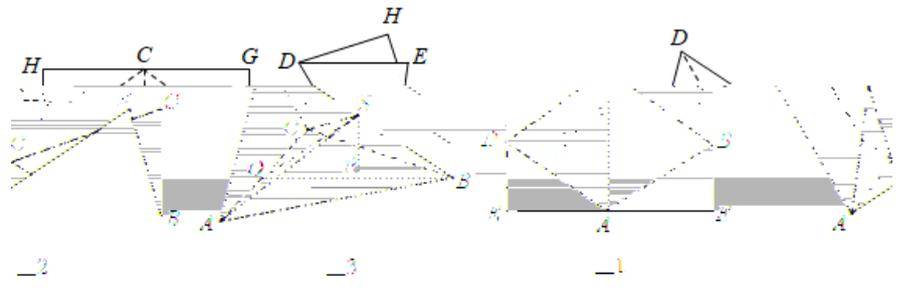
$a_n = \underline{\hspace{2cm}}$
 $n = a_n = n = S_n = 27$

18. 12 C y^3 C $A(4,2), D(0,2)$
 C
 $P(1,1)$ l C 4 l

19. 12 O x C $\frac{3}{2}\sqrt{6}$
 C
 y x 4 C OA OB

20. 12 a_n $a_1 - 1$ na_{n-1} $n - 1$ $a_n - 1$
 b_n $\frac{a_n}{n}$ b_n
 $2^n a_n$ n S_n

21. 12 A4 $\sqrt{2}:1$
 A4 EFCH EF:EH $\sqrt{2}:1$
 1 A4 EFCH EF:EH $\sqrt{2}:1$
 A B C D EF FG GH HE AB BC CD DA AC 2
 E F G H S 3 D ABC O AC
 SOB SP BO
 SP// ACD
 M,N AB, BC AM BN B DMN DAB
 DMN



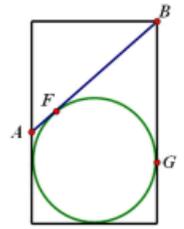
22. 12 PAB A B $A(0, \sqrt{3})$ $B(0, \sqrt{3})$ PA, PB
 $\frac{3}{2}$
 F_1, F_2 $|PF_1|$ $|PF_2|$
 P C, D, E AC, AD y AC AE
 DE

1-5. CBCDA 6-10. CCDDB

10.

0

$$a = \frac{5}{4}, \quad e = \frac{3}{5}, \quad c = \frac{3}{4}, \quad |BF| = 2, \quad |BG| = 1$$



$$2 \quad 5 \quad 10 \quad .$$

5

$$0 \quad 3 \quad .$$

11. AC 12. BCD

12.

$$\vec{AD} = \frac{1}{2} \vec{AA_1} + \vec{BA_1} + \vec{BC}$$

Coordinate system $Oxyz$ with origin at A :

$$A \left(\frac{a}{2}, 0, 0 \right), \quad B \left(0, \frac{\sqrt{3}}{2}a, 0 \right), \quad B_1 \left(0, \frac{\sqrt{3}}{2}a, b \right), \quad C_1 \left(\frac{a}{2}, 0, b \right)$$

$$\vec{BC_1} = \left(\frac{a}{2}, \frac{\sqrt{3}}{2}a, b \right), \quad \vec{AB_1} = \left(\frac{a}{2}, \frac{\sqrt{3}}{2}a, b \right)$$

$$\vec{BC_1} \cdot \vec{AB_1} = \left(\frac{a}{2} \right)^2 + \left(\frac{\sqrt{3}}{2}a \right)^2 + b^2 = 0$$

$$\frac{a}{2} = \frac{\sqrt{3}}{2}a = b = 0 \quad b = \frac{\sqrt{2}}{2}a$$

$$DE \parallel \text{plane } ABB_1A_1 \quad E \quad |BB_1| = \frac{\sqrt{2}}{2}|AC| \quad B$$

$$\vec{DA} = \left(\frac{a}{2}, 0, 0 \right), \quad \vec{BC_1} = \left(\frac{a}{2}, -\frac{\sqrt{3}}{2}a, \frac{\sqrt{2}}{2}a \right)$$

$$\cos \angle(\vec{BC_1}, \vec{DA}) = \frac{|\vec{BC_1} \cdot \vec{DA}|}{|\vec{BC_1}| |\vec{DA}|} = \frac{\frac{a}{2}}{\frac{a}{2} \sqrt{\frac{6}{2}}} = \frac{\sqrt{6}}{6}$$

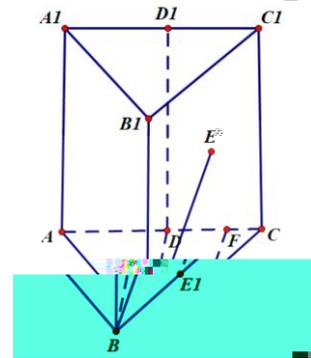
$$\angle(\vec{BC_1}, \vec{DA}) = \frac{\sqrt{6}}{6} \quad C$$

$$E \text{ on } ACC_1A_1 \quad \vec{E_1F} = \frac{\sqrt{3}}{2} \vec{EB}$$

$$\vec{CE_1F} \quad \vec{E_1F} = \frac{\sqrt{3}}{2} \vec{E_1C} \quad \vec{EB} \quad \vec{E_1C} \quad \vec{E_1C} \quad E \quad CC_1$$

$$E \text{ on } BCC_1B_1$$

$$E, D$$



13. (0 1) y^4 14. $2 \cdot 63$ 15. $\sqrt{10}$ y^3 $3x$ $4y^3$ 0 16. 376 760
16. A_4 $n|n$ a_4 2^4 a_3 2^3 a_2 2^2 a_1 2^1 a_0 2^0
 a_4 1 a_0 a_1 a_2 a_3 0 n 16 a_0 a_1 a_2 a_3 a_4 1 n 31
 A_4 16 17 18 31 16 $\frac{16 \ 16 \ 31}{2}$ 376
 a_4 1 k 5 c_n 1
 a_3 1 a_2 1 a_1 1 a_0 1 8
16 2^5 8 2^4 2^3 2^2 2^4 2^0 760
6 70 17 10
17. 12
10 a_n d a_3 a_1 a_7 a_3^2 a_1 a_7 1
 a_1 2 2 $2d^2$ 2 2 $6d$ d 1 4
 a_n n 1 5
 S_n $\frac{n \ 2 \ n \ 1}{2}$ $\frac{n \ n \ 3}{2}$ 7
 $\frac{n \ n \ 3}{2}$ 27 n^2 $3n$ 54 0 n 6 9
 n 6 S_n 27 10
18. 12
 C $a,3$ C x a^2 y 3^2 r^2 1
 A 4,2 , B 0,2 C 4 a^2 2 3^2 r^2 a 2 5
 a^2 2 3^2 r^2 r $\sqrt{5}$
 C x 2^2 y 3^2 5 6
 C l d $\sqrt{5}$ 4 1 8 \mathbb{M} \mathbb{MD} 20
 l x 1 l 1 9
 l $l:y$ 1 k x 1 kx y k 1 0
 C l d $\frac{|2k \ 3 \ k \ 1|}{\sqrt{1 \ k^2}}$ 1 k $\frac{3}{4}$ 11
 l y 1 $\frac{3}{4}$ x 1 $3x$ $4y$ 1 0
 x 1 $3x$ $4y$ 1 0 12
19. 12
 y^2 $2px$, 2 \mathbb{M} \mathbb{MD} 192
 C $\frac{3}{2}\sqrt{6}$

