

2019-2020

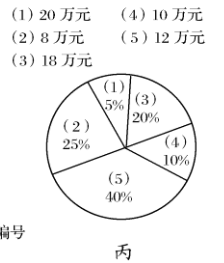
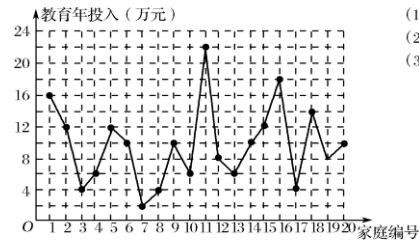
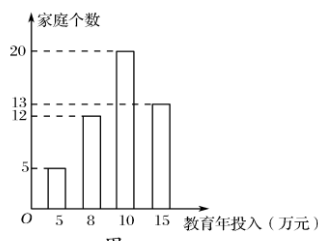
$$z = \frac{(1+i)^2}{1-2i} \quad i \quad |z| = \frac{\sqrt{10}}{5} \quad \frac{2}{5} \quad \frac{2\sqrt{5}}{5} \quad \frac{4}{3}$$

$$l_1: 2x - my - 1 = 0 \quad l_2: (m-1)x - y + 1 = 0 \quad m = 2 \quad l_1 // l_2$$

A B

C

$A = A = A \quad B = B = B$
 $B > B = B \quad C = C = C$
 $A > A = A \quad C > C > C$
 $A > A = A \quad B > B > B$



$$ax + by = ab (a > 0, b > 0)$$

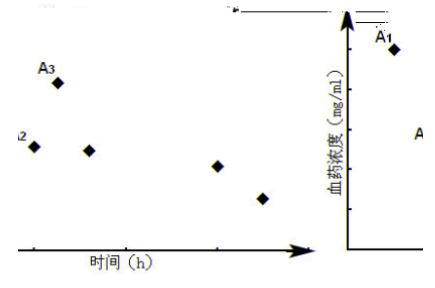
(1,1) x y

1 2 4 8
(mg/ml)

$A_i \quad i$

$h \quad A_i \quad i$

(i=1,2,3)



$V_i \quad i$

$T_i \quad i$

$V_1, V_2, V_3 \quad T_1, T_2, T_3$

V_2, T_3

V_2, T_2

V_1, T_3

V_1, T_2

$$x^2 + y^2 - 2x + 4y = 0$$

$$2tx - y - 2 - 2t = 0 (t \in \mathbf{R})$$

$$C: (x - \sqrt{3})^2 + (y - 1)^2 = 1$$

$$A(-t, 0), B(t, 0) (t > 0)$$

C

P

$$\angle APB = 90^\circ$$

t

4

3

2

1

$$x^2 + y^2 = r^2 (r > 0)$$

4

$$x - y - 2 = 0$$

1

r

$$(\sqrt{2} + 1, +\infty)$$

$$(\sqrt{2} - 1, \sqrt{2} + 1)$$

$$(0, \sqrt{2} - 1)$$

$$(0, \sqrt{2} + 1)$$

$$\Delta ABC \quad A, B, C \quad a, b, c \quad \frac{\sin^2 A + \sin^2 B - \sin^2 C}{c} = \frac{\sin A \sin B}{a \cos B + b \cos A}$$

$$a+b=4 \quad c$$

(0,4)

[2,4)

[1,4)

(2,4]

$$O \quad ABC \quad AB=2a \quad AC=\frac{2}{a} \quad \angle BAC=120^\circ \quad \overrightarrow{AO} = \alpha \overrightarrow{AB} + \beta \overrightarrow{AC} \quad \alpha + \beta$$

2

4

5

$2\sqrt{7}$

xOy

C

$$x^2 + y^2 - 4x = 0$$

$$y = k(x+1)$$

P

P

k

1

2

3

4

$ABCD$

$$AB=1$$

$$AD=2$$

P

C

BD

$$\overrightarrow{AP} = \lambda \overrightarrow{AB} + \mu \overrightarrow{AD}$$

$\lambda + \mu$

3

2

1

-1

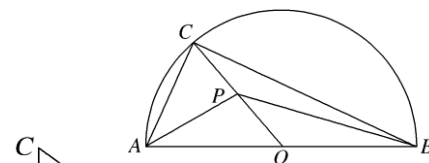
$$AB=6 \quad O \quad C$$

A, B

$P \quad OC$

$$|\overrightarrow{PO}| \cdot |\overrightarrow{PC}|$$

$$(\overrightarrow{PA} + \overrightarrow{PB}) \cdot \overrightarrow{PC}$$



ΔABC

$$\angle ABC = 90^\circ$$

$$AB=4 \quad BC=3$$

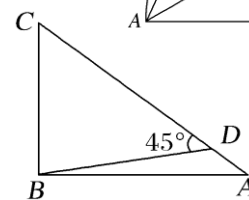
D

AC

$$\angle BDC = 45^\circ$$

$$BD =$$

$$\cos \angle ABD =$$



P

$$A(-1,0) \quad B(3,4)$$

AB

P

C

D

$$|CD| = 4\sqrt{10}$$

CD

P

$$O: x^2 + y^2 = 4$$

l

O

P

Q

$$A(2,2)$$

$$AP^2$$

$$AQ^2$$

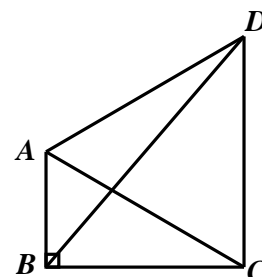
$$40$$

PQ

$$ABCD \quad \angle ABC = \frac{\pi}{2}, \quad \angle DAC = 2\angle ACB, \quad \angle ADC = \frac{\pi}{3}$$

$$\angle ACB = \frac{\pi}{6}, \quad BC = \sqrt{3} \quad BD$$

$$DC = \sqrt{3}AB \quad \cos \angle ACB$$



$$A(0,1) \quad k \quad l \quad C:(x-2)^2+(y-3)^2=1 \quad M,N$$

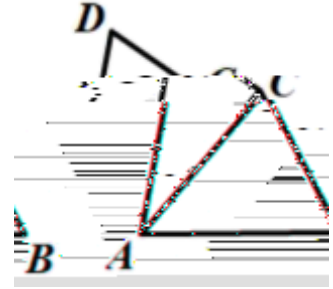
$$\overrightarrow{OM} \cdot \overrightarrow{ON} = 12 \quad O \quad |MN|$$

$$ABCD \quad \angle CAB = \alpha \quad \angle ABC = \beta \quad \angle ACB = \gamma$$

$$\cos \gamma (\sin \alpha + \sin \beta) = \sin \gamma (2 - \cos \alpha - \cos \beta)$$

$$CA + CB = 2AB$$

$$CA = CB \quad DA = 2DC = 1 \quad ABCD$$



7 y

t	1	2	3	4	5	6	7
y	y ₁	y ₂	y ₃	y ₄	y ₅	y ₆	y ₇

$$\sum_{i=1}^7 y_i = 9.32 \quad \sum_{i=1}^7 t_i y_i = 40.17 \quad \sqrt{\sum_{i=1}^7 (y_i - \bar{y})^2} = 0.55$$

y t

y t

0.01

$$x_i = \sqrt{t_i} \quad i=1,2,\dots,7$$

10

8

15

$$\sqrt{7} \approx 2.646 \quad r = \frac{\sum_{i=1}^n (t_i - \bar{t})(y_i - \bar{y})}{\sqrt{\sum_{i=1}^n (t_i - \bar{t})^2 \sum_{i=1}^n (y_i - \bar{y})^2}} \quad |r| > 0.75$$

$$y = \hat{b}t + a$$

$$\hat{b} = \frac{\sum_{i=1}^n (t_i - \bar{t})(y_i - \bar{y})}{\sum_{i=1}^n (t_i - \bar{t})^2} \quad a = \bar{y} - \hat{b}\bar{t}$$

$$l: 4x + 3y + 10 = 0 \quad 2 \quad C \quad l \quad C \quad x \quad l$$

C
 $M(1,0) \quad C \quad A, B \quad A \quad x$