1 n

10. .

A. 2^0 B. 3^0 C. 5^0 D. 7^0 E. 13^0

11. n $\frac{n}{15}$

1 $\frac{3n}{15}$

2 $\frac{8n}{15}$

12 m n $mn+1$ 3

1 m 3 1

2 n 9 , 8

13 n 140

1 n 10

2 n 14

14 p, $p+2$, $p+6$, $p+8$ $p+14$

1 $p=3$

2 $p=5$

15 $\frac{f(1)+f(2)+\cdots+f(2005)}{2005}=2005$

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

2 $f(x)=x$

16 $a^2b-ab^2=4\sqrt{2}$

1 $a=3+2\sqrt{2}$

2 $b=3-2\sqrt{2}$

1A 2B 3D 4E 5C 6B 7D 8A
9E 10A 11B 12C 13E 14B 15A 16C

1. $x+q$ $x+\frac{1}{5}$ x q =

A. $\frac{1}{5}$ B. 5 C. 4 D. $-\frac{1}{5}$ E. $-\frac{1}{4}$

2. $m+\frac{1}{m}=3.$, $m^2+\frac{1}{m^2}$ =

A 9 B. 11 C. 7 D. 1 E. 5

3. $(2x^3-5x^2+3x-2)\div(-x+1+2x^2)=$ ( )

A $x-2$ B. $x+2$ C. $x-1$ D. $x+1$ E. $x-3$

4 $f(x)=x^4+3x^3+5x+3, g(x)=x^2+x+1,$ $f(x)$ $g(x)$ $r(x)$ =( )

A $x+1$ B. $x-1$ C. $2x+1$ D. $5x-5$ E. $6x+6$

5. x^2+x-6 $2x^4+x^3-ax^2+bx+a+b-1$ $a+b$ =( )

A 17 B. 15 C. 19 D. 20 E. 12

6. ⊥ABC a, b, c, $a^4+b^4+c^4=a^2b^2+b^2c^2+c^2a^2$ ⊥ABC

A B. C. D. E.

7. $x^2+2x+y^2-6y+10=0$ $x-y$ = ( )

A. −4 B. 3 C. 4 D. −2 E. 0

8. $\frac{1}{a}+\frac{1}{b}=\frac{1}{a+b}$ $\frac{b}{a}+\frac{a}{b}=$

A. −3 B. −2 C. 2 D. 3 E. −1

9. $\frac{x}{x-y}$ x y 3

A. 3 B. 3 C. D. 2 E. 2

10. $\frac{\qquad}{1}$

1　$m=-24$　　2　$m=-25$

13. $\dfrac{1}{x(x-1)}+\dfrac{1}{x(x+1)}+\cdots+\dfrac{1}{(x+9)(x+10)}=\dfrac{11}{12}$

1　$x=2$　　2　$x=-11$

14. $x^4-6x^3+ax^2+bx+4$

1　$a=13$　　2　$b=-12$

15. $\dfrac{1}{-x^2+3x+4}$

1　$x\prec -2$　　2　$x\succ 5$

16. $\dfrac{1}{b^2+c^2-a^2}+\dfrac{1}{c^2+a^2-b^2}+\dfrac{1}{a^2+b^2-c^2}=0$

1　$abc\neq 0$

2　$a+b+c=0$

1 D　2 C　3 A　4 E　5 C　6 B　7 A　8 E　9 C　10 B

11 A　12 E　13 D　14 C　15 D　16 C

1　$|x-2y-3|$　$|3x-4y+2|$　　$x^2-y^2=$(　)

A. $\dfrac{133}{4}$　　B. $\dfrac{135}{4}$　　C. $\dfrac{133}{3}$　　D. $\dfrac{137}{3}$　　E. $-\dfrac{137}{3}$

2　a，b，c　　$|a-b|^{2007}+|c-a|^{2008}=1$，　$|c-a|+|a-b|+|b-c|=$(　)

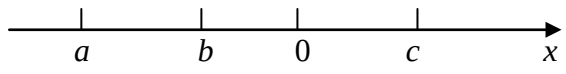
A. 3　　B. 2　　C. 0　　D. 1　　E. 4

3　$x\succ 0$，　$x^2+\dfrac{6}{x}$

A　$3\sqrt[3]{9}$　　B. $2\sqrt[3]{9}$　　C. $\sqrt[3]{9}$　　D. $3\sqrt{3}$　　E. $2\sqrt{3}$

4　　a，b，c

.



$|a|+|b|+|c|-|a+b|+|b+c|-|c-a|=$(　)

A　$a+b+c$　　B. $a+b-c$　　C. $a-b+c$　　D. $a-b-c$　　E. $2a+b-2c$

5.　$|x|=5$，　$|y|=4$　　$|x-y|+x-y=0$　　$x+y$　=(　)

A −1 B. −9 C. 1 D. 9 E. −1 −9

6. a, b, c $|a|+a=0$, $|ab|=ab$, $|c|-c=0$,

$|b|-|a+b|-|c-b|+|a-c|=$

A. b B. c C. $a-b$ D. $a+b$ E. 0

7. $\left|\frac{2x \quad 1}{x \quad 1}\right|$ 1 $\frac{1-2x}{x}$ X

A -1 0 B. -3 -1 C. (1 3]

D. -1 $\frac{1}{2}$ E. -3 $-\frac{1}{2}$]

8. $|x+3|-|x-1|=x+1$

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

9. a, b a, b m $\frac{1}{a}+\frac{1}{b}=n$ a, b

A.$\sqrt{\frac{m}{n}}$ B.$\sqrt{\frac{2m}{n}}$ C.$\frac{m}{n}$ D.$\frac{2m}{n}$ E.-$\frac{2m}{n}$

10. 5 25 1 31

A 1 B. 6 C. 11 D. 124 E. 2

11. $a=b=c$

1 b a,c

2 b a,c

12. $a+2$ $b+3$, $c+6$ 8 7

1 a,b,c 5

2 a,b,c 7

13. $|x-3|\prec x-1$

1 $x\in(-1,0)$

2 $x\in[2,+\infty)$

14. $a-b=\dfrac{3}{2}$

(1) a,b R, $|a-1|+b^2+2b=-1$

(2) a,b R, $|a-1|+4b^2+4b=-1$

15. $|x+1|+|x-4|=a$

1 $a=5$ (2) $a=-5$

16. $|x+2|+|x-3|=a$

1 $a=5$ (2) $a\succ 5$

1. B 2. D 3. A 4. C 5. E 6. A 7. D 8. C
9. B 10. A 11. C 12. A 13. E 14. B 15. D 16. E

1. $kx^2-(2k+1)x+k+2=0$ k

A. $(-\infty,0]\cup(0,\dfrac{1}{4})$ B. $(-\infty,0)$ C. $(0,\dfrac{1}{4})$

D. $(-\infty,0)\cup(0,\dfrac{1}{4}]$ E. $(-\infty,0)\cup(0,\dfrac{1}{4})$

2. $2x^2+mx+2m-1=0$ $3\dfrac{1}{4}$ $m=$

A. −1 B. −1 9 C. 1 −9 D. 1 9 E. 1

3. $a>b$, $\dfrac{1}{a}>\dfrac{1}{b}$,

A. $a>b>0$ B. $0>a>b$ C. $a>0>b$

D. $|a|>|b|$ E.

4. $px^2+qx+r=0\ (p\neq 0)$ 0 −1 $\dfrac{q}{p}=$

A 0 B. −1 C. −2 D. 1 E. 2

5. $x^2-101x+k-7=0$ 3 7 $k=$ ( )

A 2004 B. 2005 C. 2006 D. 2007 E. 2008

6. x $x^2+(m-2)x-m-3=0$ 25

$m=$( )

A. 3 B. 4 C. 2 D. 1 E. 5

7. $(x+2)^2 \geq 5x+6$

A. $(-\infty,-1)$ B. $(2,+\infty)$ C. $(-\infty,-1)\cup(2,+\infty)$

D. $[-2,2]$ E. $(-\infty,-1]\cup[2,+\infty)$

8. $0<x<1$, $\dfrac{3x^2-2}{x^2-1}>1$

A. $(0,1)$ B. $(0,\dfrac{1}{2})$ C. $(0,\dfrac{1}{\sqrt{2}})$ D. $(0,\dfrac{1}{\sqrt{3}})$ E.

9. $|x^2-5x+6|<x^2-4$

A. $(0,2)$ B. $(2,+\infty)$ C. $(0,1)$ D. $(1,+\infty)$ E. $(1,2)$

10. $\sqrt{2-x}<x$

A. $x>1$ $x<-2$ B. $-2<x<1$ C. $1\leq x<2$

D. $-2<x<2$ E. $1<x\leq 2$

11 $x^2-2mx+m^2-4=0$

1 $m<1$ 2 $m>2$

12 $x^2+(2k+1)x+k^2-2=0$ 11

1 $k=1$ 2 $k=-3$

13 x_1,x_2 $x^2+kx-1=0$ $\dfrac{1}{x_1}=2-\dfrac{1}{x_2}$

1 $k\leq 3$ 2 $k\geq 3$

14 $\lg(2x^2+3x-2)$

1 $x<-3$ 2 $x>3$

15 $x^2-2|x|-15>0$

1 $x\in(-5,5)$ 2 $x\in(-\infty,-4)$

16 $\dfrac{16}{x-1}<x-1$

1 $x\in(0,1)$ 2 $x\in(5,+\infty)$

1E 2A 3C 4D 5B 6A 7E 8C
9B 10E 11B 12A 13C 14D 15E 16D

1 n $\dfrac{n-1}{n}+\dfrac{n-2}{n}+\cdots+\dfrac{1}{n}=$

A 5 B. $\dfrac{n}{2}$ C. $\dfrac{n-1}{2}$ D. $\dfrac{n+1}{2}$ E. -5

2 $\{a_n\}$ $a_1-a_4-a_8-a_{12}+a_{15}=2,\quad a_3+a_{13}=$

A. 4 B. -4 C. 3 D. -3 E. 5

3 $3,12,30,60,\cdots$

A. $a_n=3+\dfrac{9n(n-1)}{2}$ B. $a_n=5n^2-6n+4$ C. $a_n=\dfrac{n(n+1)(n+2)}{2}$

D. $a_n=\dfrac{11n^2-17n+12}{2}$ E. $a_n=n^2-7n+8$

4 $\{a_n\}$ $a_5+a_1=34, a_5-a_1=30,\quad a_3=$

A. 5 B. -5 C. -8 D. 8 E. ±9

5. $\{a_n\}$ n S_n n

$a_1=-2, a_2=2, a_3=6,\quad a_{100}=$

A. 394 B. 395 C. 396 D. 397 E. 398

6 $\{a_n\}$ $a_4=9, a_9=-6,$ $S_n=54.$ n

A. 8 B. 3 8 C. 9 D. 4 E. 4 9

7 $\{a_n\}$ $a_1a_9=64, a_3+a_7=20,$ $a_7>a_3$ $a_{15}=$

A. 254 B. 256 C. 258 D. 260 E. 262

8 $\{a_n\}$ $a_4+a_7+a_{10}=17, a_4+a_5+\cdots+a_{14}=77,$ $a_k=13,$ $k=$

A. 18 B. 17 C. 16 D. 26 E. 22

9 $\{a_n\}$ $a_1+a_2+a_3=18, a_2+a_3+a_4=-9,$ 8

A. 6561 B. 6562 C. $\frac{6560}{19}$ D. $\frac{6562}{17}$ E. $\frac{6561}{16}$

10 a,b,c x,y a,b b,c $x^2+y^2=$

A. $2a^2$ B. b^2 C. $2b^2$ D. c^2 E. $2c^2$

11 $\{a_n\}$ $a_1=\frac{1}{2}, a_2=\frac{1}{4}$

1 $\{a_n\}$ $a_n=\frac{1}{2n}$

2 $\{a_n\}$ $a_n=\frac{1}{2^n}$

12. $\{a_n\}$ n s_n s_6 $s_n\ (n\in N)$

1 $a_1<0,\ d>0$

2 $a_1=23, d=-4$

13. $\{a_n\}$

1 n $s_n=2n^2+n$

2 n $s_n=2n^2+n-1$

14. b a c

1 $b^2=ac$

2 $\lg b=\frac{1}{2}(\lg a+\lg c)$

15. $\{a_n\}$ s_n n $s_n>4095$ n 7

1 $\{a_n\}$ $a_1=3$

2 $\{a_n\}$ $q=4$

16. $\{a_n{}^2\}$ n $s_n=\frac{1}{3}(4^n-1)$

1 $\{a_n\}$ $q=2,$ $a_1=1$

2 $\{a_n\}$ n $s_n=2^n-1$

1 C 2 B 3 C 4 D 5 A 6 E 7 B 8 A
9 E 10 C 11 D 12 B 13 A 14 B 15 C 16 D

1. 2 5

A. 50% B. 60% C. 65% D. 55% E. 62%

2. 50% 60%
4500

A. 22500 B. 25000 C. 27500 D. 30000 E. 28500

3. 580 $\frac{1}{3}:\frac{1}{5}:\frac{1}{9}$

A. 193 B. 290 C. 300 D. 320 E. 280

4. 15
2:1 45 1 5

A. 70 B. 65 C. 60 D. 55 E. 50

5. 34%
6 5. 4500

A. 4800 B. 4900 C. 5300 D. 5100 E. 5200

6. 210 25%, 25%

A. B. 24 C. 28 D. 28 E. 24

7. 9 00 50 5
70 5

A. 9:45 B. 9:40 C. 9 35 D. 9:30 E. 9:50

8. 177 55
180 50

A 6.4 B 5.8 C 5.6 D 4.8 E 3.4

9. 15 12 1
4

A.3 B.4 C.5 D.6 E.7

10. 30 24 10
17

A.70 52.5 B.70.5 52 C.65 60 D.52 70.5 E.52.5 70

11.
1 0.5
2 7

12. 2009 2008 2.2%
1 2009 2008 2% 0.2%
2 2009 2008 1.2% 0.3%

13.
2
1 10
2 2

14. 30
1 14
88
(2) 15
100

15. 30 /
1800
1 3
2 3 20

16.
1 8 10
2 10% 8%

1. B 2. A 3. C 4. E 5. D 6. C 7. D 8. E
9. B 10. A 11. C 12. A 13. E 14. B 15. C 16. C

1.

A. B. C. D. E.

2. ABC $\angle C = 2\angle B$ $\angle B$

A. $\left(10^0, 20^0\right)$ B. $\left(20^0, 30^0\right)$ C. $\left(30^0, 45^0\right)$

D. $\left(45^0, 50^0\right)$ E. $\left(50^0, 60^0\right)$

3. a b $a:b$

A. $4:3$ B. $2:1$ C. $3:2$ D. $1:3$ E. $5:4$

4. α, β, γ $\square ABC$ $\angle A$ $\angle B$ $\angle C$ $\alpha:\beta:\gamma$ =4 2 3 $\angle BAC$ =

A. 90^0 B. 80^0 C. 60^0 D. 40^0 E. 20^0

5. 4 6

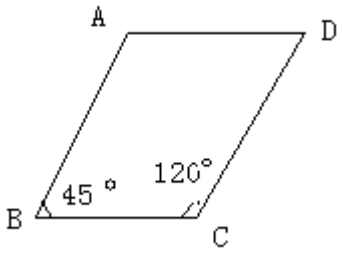
A. $8\sqrt{2}$ B. $8\sqrt{2}$ 15 C. 15 D. $8\sqrt{2}$ $3\sqrt{7}$ E. $3\sqrt{7}$

6. 1 2 3 1

A. 2 B. 3 C. $\sqrt{2}$ D. $\sqrt{3}$ E. $\sqrt{5}$

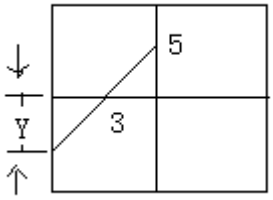
7 ABCD AD//BC $\angle B = 45^0$ $\angle C = 120^0$ AB=8 CD

A. $4\sqrt{6}$ B. $\frac{8\sqrt{6}}{3}$ C. $\frac{8\sqrt{2}}{3}$ D. $\frac{8\sqrt{3}}{3}$ E. $4\sqrt{2}$



8. 14 4 Y

A .5 B.6 C. $6\frac{5}{8}$ D. $6\frac{2}{3}$ E. $6\frac{3}{4}$



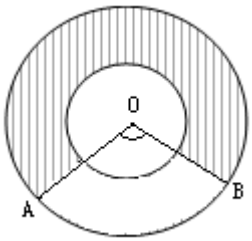
9. ΔABC a b c r ΔABC

A. — a+b+c r B. $\frac{}{4}$ a+b+c r C. $\frac{}{3}$ a+b+c r

D. $\frac{}{2}$ a+b+c r E. a+b+c r

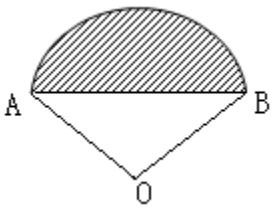
10. 2 1, $\angle AOB = 120^0$,

A.π B.$\frac{4}{3}\pi$ C.2π D.$\frac{7}{5}\pi$ E.4π



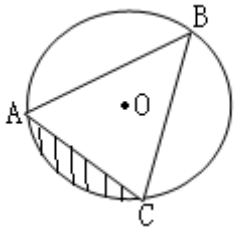
11. $100\pi - 25\sqrt{3}$

1 10



2 120^0

12. $\left(\frac{\pi}{2}-1\right)cm^2$ cC9 0 .268 TD[(¨ ,)]TJ 0 J /C2_0 6 0 0 .51513 0 0 Tm 16233 TD[(



13. ΔABC

1 ΔABC a b c a b c 1 $\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{2}}$

2 ΔABC a b c a b c 5 4 3

14. ABC $9\sqrt{3}$

1 $3\sqrt{3}$ 60°

2 60°

15 10cm

1 $15\sqrt{3}\ \text{cm}^2$

2 ŷ $25\sqrt{3}\ \text{cm}^2$

16. $\Delta ABC \cong \Delta A'B'C'$

1 ∠A ∠A' ∠ B=∠B'

2 AB B'C'

1B 2C 3A 4E 5D 6A 7B 8D
9D 10C 11E 12C 13D 14A 15B 16E

1 l $A(2,4)$ $B(m,5)$ l k

A B 0 C

ŷ

D $x+y=2$ $y=x$ E

3 $l_1: ax+by+c=0,$ $l_2: mx+ny+p=0$ $an=bm$ $l_1 // l_2$

A B C
D E

4 $l_1: y=\sqrt{3}x+1$ $l_2: y=2$

A 120° B 150° C 60° D 45° E 30°

5. $x-y-2=0$ $2\sqrt{2}$

A $X-Y\ 2=0$ B $x-y-6=0$ C $x-y\ 2=0$ $-y-6=0$

D $x-y\ 2=0$ $-y-2=0$ E x y $2=0$

6. $(x-1)^2+y^2=1$ y $\frac{\sqrt{3}}{3}x$

A.$\frac{1}{2}$ B .$\frac{\sqrt{3}}{2}$ C.1 D .$\sqrt{3}$ E.$\frac{\sqrt{3}}{5}$

7 x+2y=0 x^2 y^2 $6x$ 2y 15 0

A.$\sqrt{5}$ B.$2\sqrt{5}$ C.$3\sqrt{5}$ D.$4\sqrt{5}$ E.$5\sqrt{5}$

8 x^2 y^2 2 6x y+9 0 $x+y=0$ ( )

A.x^2 y^2 6x 2y 9 0 B.x^2 y^2 6x 2y 9 0
C.x^2 y^2 6x 2y 9 0 D.x^2 y^2 6x 2y 9 0
E.x^2 y^2 6x 2y+9 0

9. x 2y λ 0 1 2

x^2 y^2 2x 4y 0 λ

A. 3 13 B.3 13 C.3 13
D. 3 13 E.

10. $(1+a)x+y+1=0$ x^2 y^2 2x 0 , a=( )

A 1 1 B 2 2 C 1 D 1 E 2

.

11. $A(x_0, y_0)$ $3x+4y\ \ 1=0$ $A'\left(\frac{4}{5}, -\frac{8}{5}\right)$

1 $x_0 = 2$ $y_0 = 0$

2 $x_0 = 1$ $y_0 = 0$

12. $(a-2)y = (3a-1)x - 1$

1 $a = 2$

2 $a = \frac{1}{3}$

13. L $4x-3y+9=0$

1 L $2x+3y+1=0$ $x-3y+4=0$

2 L $3x+4y-7=0$

14. $2mx - y - 8m - 3 = 0$ $(x-3)^2 + (y+6)^2 = 25$

1 $m > 1$

2 $m < 1$

15. $x - y + b = 0$ x^2 y^2 1

1 $-\sqrt{2} < b < \sqrt{2}$

2 $b < -\sqrt{2}$ $b > \sqrt{2}$

16. $Ax^2 + By^2 + 2x - 3y + 5 = 0$

1 A=3, B=2

2 A=2, B=2

1 E 2 D 3 B 4 A 5 C 6 A 7D 8E

9 B 10 C 11 A 12 D 13 C 14 D 15B 16 E

1. 3 5

A. 4220 B. 4320 C. 4300 D. 2220 E. 286

2. 50 30 20 60 30 30
55 35 20

A. 80 B. 70 C. 60 D. 160 E. 180

3. 0 1 2 3 4 5 6 300 4035

A. 1230 B. 1240 C. 1250 D. 1260 E. 1270

4.

A. 840 B. 1020 C. 1100 D. 1340 E. 1440

5. 9 2 3 4

A. 1100 B. 1160 C. 1200 D. 1260 E. 1280

6. 9 2 3 4

A. 7560 B. 6560 C. 5560 D. 4560 E. 3560

7. 9

A. 380 B. 360 C. 280 D. 260 E. 240

8. 3 6 3 1 2

A. 90 B. 180 C. 270 D. 540 E. 680

9. 4 3 4 4

A. 140 B. 120 C. 65 D. 35 E. 34

10. 9 4 2 2 2 3

A. 1150　　B. 1260　　C. 960　　D. 898　　E. 648

.

11. $m=\frac{n(n-1)}{2}$

1　$n(n>1)$　　m

2　$n-1(n>2)$　　m

12.　　10　　5　　4　　980

1　　2　　2

2　　4　　2

13. $k=5\bullet 6^5$

1　$0,1,2,3,4,5,$　　k　　6

2　$0,1,2,3,4,5,$　　k　　6

14. 6　　4　　4×100　　240

(1)

2

15.　　7　　35

(1)　　7　　2

(2)　　7　　3

16.　　10　　10　　403200

(1)　　5

(2)　　4

1B　2A　3C　4E　5D　6A　7C　8D

9E　10B　11A　12E　13B　14A　15C　16B

1. $A\supset C, B\supset C, P(A)=0.7, P(A-C)=0.4, P(AB)=0.5,\quad P(AB-C)=($　　$)$

A .0.4　　B. 0.3　　C. 0.2　　D .0.1　　E .0.15

2.　A,B　　$P(AB)=P(\overline{\overline{AB}}),\quad P(A)=P,\quad P(B)=($　　$)$

A. P　　B. $1+P$　　C. $1-2P$　　D. $1-P$　　E. $1+2P$

3. 3　　4　　2

A. $\frac{9}{16}$ B. $\frac{7}{16}$ C. $\frac{5}{16}$ D. $\frac{3}{16}$ E. $\frac{1}{16}$

4. 10 6 4

A. $\frac{1}{15}$ B. $\frac{1}{14}$ C. $\frac{1}{13}$ D. $\frac{1}{12}$ E. $\frac{1}{11}$

5. 7 0 7 0 9

A. $\frac{9^7+8\times9^6}{10^6}$ B. $\frac{9^7+9^6-8^7}{9\times10^6}$ C. $\frac{9^7+9^6-8^7}{10^6}$

D. $\frac{8\times9^7+8\times9^6-8^7}{9\times10^6}$ E. $\frac{9^7+8\times9^6-8^7}{9\times10^6}$

6. A B $\frac{1}{9}$ A B B

A P A =

A. $\frac{2}{3}$ B. $\frac{2}{5}$ C. $\frac{1}{3}$ D. $\frac{4}{5}$ E. $\frac{3}{4}$

7. $\frac{1}{5}$ $\frac{1}{3}$ $\frac{1}{4}$

A. $\frac{6}{7}$ B. $\frac{5}{7}$ C. $\frac{3}{5}$ D. $\frac{2}{5}$ E. $\frac{1}{4}$

8. A={ } $\overline{A}$

A.{ } B.{ } C.{ }
D .{ } E.{ }

9. 5
2 3

A . $\frac{61}{123}$ B. $\frac{61}{125}$ C . $\frac{31}{123}$ D. $\frac{59}{125}$ E. $\frac{61}{124}$

10. 2 B,C 1 2

$x^2+Bx+C=0$ $P(A)=$ （ ）

A. $\frac{1}{36}$ B. $\frac{5}{36}$ C. $\frac{19}{36}$ D. $\frac{25}{36}$ E. $\frac{17}{36}$

11. $P(B)=0\cdot6$

(1) $P(A)=0\cdot 6$, $P(A\cup B)=0\cdot 84$

(2) $P(A)=0\cdot 6$, $P(A-B)=0.24$

12. $P(AB)=P(B)$

(1) $P(A)=1$

(2) $\mathrm{P(B)}=0$

13. A,B $AB=B$

(1) $B=\Omega$

(2) $B=\phi$

14. A,B $AB=\phi$

(1) $A=B$

(2) $A\neq B$

15. 4 1 P

(1) 4 4 3

(2) 4 1 4 16 36

16. 3

$$\frac{23}{28}$$

(1) 5

(2) 3

1 C 2 D 3 A 4 B 5 E 6 A 7 C 8 D

9 B 10 E 11 C 12 D 13 B 14 E 15 D 16 C