Huawei Test 2

1

Two dice are thrown simultaneously. What is the probability of getting two numbers whose product is even?

（ ）1/ 2

（ ）3/4

（ ）3/8

（ ）5/16

Explanation:

In a simultaneous throw of two dice, we have n(S) = (6 x 6) = 36.

Then, E = {(1, 2), (1, 4), (1, 6), (2, 1), (2, 2), (2, 3), (2, 4), (2, 5), (2, 6), (3, 2), (3, 4),
(3, 6), (4, 1), (4, 2), (4, 3), (4, 4), (4, 5), (4, 6), (5, 2), (5, 4), (5, 6), (6, 1),
(6, 2), (6, 3), (6, 4), (6, 5), (6, 6)}

=> n(E) = 27.

$$=> P(E) = \frac{n(E)}{n(S)} = \frac{27}{36} = \frac{3}{4}.$$

2

In a class, there are 15 boys and 10 girls. Three students are selected at random. The probability that 1 girl and 2 boys are selected, is:

（ ）21/46

（ ）25/117

（ ）1/50

（ ）3/25

Explanation:

Let S be the sample space and E be the event of selecting 1 girl and 2 boys.

Then, n(S) = Number ways of selecting 3 students out of 25

$$= {}^{25}C_3 \grave{}$$

$$= \frac{(25 \times 24 \times 23)}{(3 \times 2 \times 1)}$$

$$= 2300.$$

n(E) = $({}^{10}C_1 \times {}^{15}C_2)$

$$= [10 \times (15 \times 14)]$$

(2 x 1)

= 1050.

=> P(E) = $\dfrac{n(E)}{n(S)}$ = $\dfrac{1050}{2300}$ = $\dfrac{21}{46}$.

3

In a lottery, there are 10 prizes and 25 blanks. A lottery is drawn at random. What is the probability of getting a prize?

( ) 1/10
( ) 2/5
( ) 2/7
( ) 5/7

Explanation:

P (getting a prize) = $\dfrac{10}{(10 + 25)}$ = $\dfrac{10}{35}$ = $\dfrac{2}{7}$.

4

From a pack of 52 cards, two cards are drawn together at random. What is the probability of both the cards being kings?

( ) 35/256
( ) 1/15
( ) 25/57
( ) 1/221

Explanation:
Let S be the sample space.

Then, n(S) = $^{52}C_2$ = $\dfrac{(52 \times 51)}{(2 \times 1)}$ = 1326.

Let E = event of getting 2 kings out of 4.

=> n(E) = $^{4}C_2$ = $\dfrac{(4 \times 3)}{(2 \times 1)}$ = 6.

=> P(E) = $\dfrac{n(E)}{n(S)}$ = $\dfrac{6}{1326}$ = $\dfrac{1}{221}$.

5

Two dice are tossed. The probability that the total score is a prime number is:

( ) 1/6
( ) 1/2
( ) 5/12
( ) 7/9

Explanation:
Clearly, n(S) = (6 x 6) = 36.

Let E = Event that the sum is a prime number.

Then E = { (1, 1), (1, 2), (1, 4), (1, 6), (2, 1), (2, 3), (2, 5), (3, 2), (3, 4), (4, 1), (4, 3),
            (5, 2), (5, 6), (6, 1), (6, 5) }

=> n(E) = 15.

=> P(E) = $\dfrac{n(E)}{n(S)}$ = $\dfrac{15}{36}$ = $\dfrac{5}{12}$.

6

The ratio of the number of boys and girls in a college is 7 : 8. If the percentage increase in the number of boys and girls be 20% and 10% respectively, what will be the new

( ) 8:9
( ) 17:18
( ) 21:22
( ) 23:24

Explanation:
Originally, let the number of boys and girls in the college be 7x and 8x respectively.

Their increased number is (120% of 7x) and (110% of 8x).

=> [$\dfrac{120}{100}$ x 7x] and [$\dfrac{110}{100}$ x 8x]

=> $\dfrac{42x}{5}$ and $\dfrac{44x}{5}$

=> The required ratio = [$\dfrac{42x}{5}$: $\dfrac{44x}{5}$] = 21 : 22.

7

Salaries of Ravi and Sumit are in the ratio 2 : 3. If the salary of each is increased by Rs. 4000, the new ratio becomes 40 : 57. What is Sumit's salary?

( ) Rs. 17,000
( ) Rs. 20,000
( ) Rs. 25,500
( ) Rs. 38,000

Explanation:

Let the original salaries of Ravi and Sumit be Rs. 2x and Rs. 3x respectively.

Then, $\dfrac{2x + 4000}{3x + 4000} = \dfrac{40}{57}$

$\Rightarrow 57(2x + 4000) = 40(3x + 4000)$

$\Rightarrow 6x = 68,000$

$\Rightarrow 3x = 34,000$

Sumit's present salary = (3x + 4000) = Rs.(34000 + 4000) = Rs. 38,000

8

If 0.75 : x :: 5 : 8, then x is equal to:

( ) 1.12
( ) 1.2
( ) 1.25
( ) 1.258

Explanation: (x x 5) = (0.75 x 8) x = 6/5 = 1.20

9

The sum of three numbers is 98. If the ratio of the first to second is 2 :3 and that of the second to the third is 5 : 8, then the second number is:

( ) 20
( ) 30
( ) 48
( ) 58

Explanation:

Let the three parts be A, B, C. Then,

$$A : B = 2 : 3 \text{ and } B : C = 5 : 8 = [5 \times \frac{3}{5}] : [8 \times \frac{3}{5}] = 3 : \frac{24}{5}$$

$$\Rightarrow A : B : C = 2 : 3 : \frac{24}{5} = 10 : 15 : 24$$

$$\Rightarrow B = [98 \times \frac{15}{49}] = 30.$$

10

If Rs. 782 be divided into three parts, proportional to 1/2 : 2/3 : 3/4, then the first part is:

( ) Rs. 182
( ) Rs. 190
( ) Rs. 196
( ) Rs. 204

Explanation:

Given ratio =   :   :   = 6 : 8 : 9.

$$1^{st} \text{ part} = RS[782 \times \frac{6}{23}] = Rs. 204$$

11

The length of the bridge, which a train 130 metres long and travelling at 45 km/hr can cross in 30 seconds, is:

( ) 200 m
( ) 225 m
( ) 245 m
( ) 250 m

Explanation: Speed = $[45 \times 5/18]$ m /sec = 25/2 m/sec

Time= 30 sec Let the length of bridge be x metres.
Then, (130+ x)/30 = 25/2
=2(130 + x) = 750
=x = 245 m.

12

Two trains running in opposite directions cross a man standing on the platform in 27 seconds and 17 seconds respectively and they cross each other in 23 seconds. The ratio of their speeds is:

( ) 1 : 3
( ) 3 : 2
( ) 3 : 4
( ) None of these

Explanation: Let the speeds of the two trains be x m/sec and y m/sec respectively.

Then, length of the first train = 27x metres,
and length of the second train = 17y metres.
(27x+ 17y)/(x+y) =23
=>27x+ 17 y = 23x+ 23y
=4x =6y
=x/y =3/2

13

P can complete a work in 12 days working 8 hours a day. Q can complete the same work in 8 days working 10 hours a day. If both P and Q work together, working 8 hours a day, in how many days can they complete the work?

A. $5\frac{5}{11}$

B. $5\frac{6}{11}$

C. $6\frac{5}{11}$

D. $6\frac{6}{11}$

( ) A
( ) B
( ) C
( ) D

Explanation: P can complete the work in (12 x 8) hrs. = 96 hrs.

Q can complete the work in (8 x 10) hrs. = 80 hrs.
P's1 hour's work =1/96 and
Q's 1 hour's work =1/80
(P + Q)'s 1 hour's work = [1/96 + 1/80]= 11/480
So, both P and Q will finish the work in 480/11 hrs
Number of days of 8 hours each =[480/11 * 1/8]=60/11 days= 5 5/11 days

14

X and Y can do a piece of work in 20 days and 12 days respectively. X started the work alone and then after 4 days Y joined him till the completion of the work. How long did the work last?

( )6 days
( )10 days
( )20 days
( )15 days

Explanation: Work done by X in 4 days =[1/20 * 4] = 1/5

Remaining work =[1-1/5] = 4/5
(X+Y)'s 1 daus work= [1/20 + 1/12] = 8/60= 2/15
Now, 2/15 work is done by X and Y in 1 day.
So, 4/5 work will be done by X and Y in [15/2 * 4/5] = 6 days
Hence, total time taken = (6 + 4) days = 10 days

15

If selling price is doubled, the profit triples. Find the profit percent.

A. $66\frac{2}{3}$ B. 100

C. $105\frac{1}{3}$ D. 120

( )A
( )B
( )C
( )D

Explanation:
Let C.P. be Rs. x and S.P. be Rs. y.

Then, 3(y - x) = (2y - x)
=>y = 2x.
Profit = Rs. (y - x) = Rs. (2x - x) = Rs. x.
Profit % = [x/x * 100]%= 100%

16

In a certain store, the profit is 320% of the cost. If the cost increases by 25% but the selling price remains constant, approximately what percentage of the selling price is the profit?

( ) 30%
( ) 70%
( ) 100%
( ) 250%

Explanation: Let C.P.= Rs. 100. Then, Profit = Rs. 320, S.P. = Rs. 420.

New C.P. = 125% of Rs. 100 = Rs. 125
New S.P. = Rs. 420.
Profit = Rs. (420 - 125) = Rs. 295.
Required percentage =[(295/420) * 100] % = 1475/21 % =70 %

17

The least perfect square, which is divisible by each of 21, 36 and 66 is:

( ) 213444
( ) 214344
( ) 214434
( ) 231444

Explanation: L.C.M. of 21, 36, 66 = 2772.

Now, 2772 = 2 x 2 x 3 x 3 x 7 x 11

To make it a perfect square, it must be multiplied by 7 x 11.

So, required number = 2^2 x 3^2 x 7^2 x 11^2 = 213444

18

1.5625 = ?

( ) 1.05
( ) 1.25
( ) 1.45
( ) 1.55

Explanation:

```
1|1.5625( 1.25
 |1
 |------
22| 56
 |44
 |------
245| 1225
 |1225
 |------
 |  X
 |------

   1.5625 = 1.25.
```

19

A fort had provision of food for 150 men for 45 days. After 10 days, 25 men left the fort. The number of days for which the remaining food will last, is:

A. $29\dfrac{1}{5}$

B. $37\dfrac{1}{4}$

C. 42

D. 54

( ) A
( ) B
( ) C
( ) D

Explanation: After 10 days : 150 men had food for 35 days.

Suppose 125 men had food for x days.
Now, Less men, More days (Indirect Proportion)
=> 125 : 150 :: 35 : x   < =>   125 x
x = 150 x 35
=> x = (150* 35)/125
=>x = 42

20

Running at the same constant rate, 6 identical machines can produce a total of 270 bottles per minute. At this rate, how many bottles could 10 such machines produce in 4 minutes?

( ) 648
( ) 1800
( ) 2700
( ) 10800

Explanation: Let the required number of bottles be x.

More machines, More bottles (Direct Proportion)

More minutes, More bottles (Direct Proportion)

Machines   6:10
                        }:: 270 : x
Time (in minutes)1:4

=> 6 x 1 x x = 10 x 4 x 270

= x = (10 x 4 x 270)/6 = x = 1800.

21

What will be the output of the program ?

#include<stdio.h>   int main() {   int a=250;   printf("%1d\n", a);   return 0; }

( ) 1250
( ) 2
( ) 50
( ) 250

Explanation: int a=250; The variable a is declared as an integer type and initialized to value 250.

printf("%1d\n", a); It prints the value of variable a. Hence the output of the program is 250.

22

What will be the output of the program if value 25 given to scanf()?

#include<stdio.h>   int main() {   int i;   printf("%d\n", scanf("%d", &i));   return 0; }

( ) This is India
( ) This is
( ) Infinite loop
( ) Error

Explanation: The macro EOF means -1.

while((ch=getc(fp)) != EOF) Here getc function read the character and convert it to an integer value and store it in the variable ch, but it is declared as anunsigned char. So the while loop runs infinitely.

23

What will be the output of the program ?

#include<stdio.h>

int main()

{ FILE *fp;

unsigned char ch;

/* file 'abc.c' contains "This is India " */

fp=fopen("abc.c", "r");

if(fp == NULL)

{ printf("Unable to open file");

exit(1); }

while((ch=getc(fp)) != EOF)

printf("%c", ch);

fclose(fp);

printf("\n", ch);

return 0; }

( ) This is India
( ) This is
( ) Infinite loop
( ) Error

Explanation: The macro EOF means -1.
while((ch=getc(fp)) != EOF) Here getc function read the character and convert it to an integer value and store it in the variable ch, but it is declared as anunsigned char. So the while loop runs infinitely.

24

What will be the output of the program if value 25 given to scanf()?
#include<stdio.h>

int main()
{
int i;
printf("%d\n", scanf("%d", &i));
return 0;
}

( )25
( )2
( )1
( )5

Explanation: The scanf function returns the number of input is given.

printf("%d\n", scanf("%d", &i)); The scanf function returns the value 1(one).

Therefore, the output of the program is '1'.

25

What will be the output of the program?

#include<stdio.h>

#define SQUARE(x) x*x

int main()

{

float s=10, u=30, t=2, a;

a = 2*(s-u*t)/SQUARE(t);

printf("Result=%f", a);

return 0;
}

( ) Result= -100.000
( ) Result=-25.000
( ) Result= 0.000
( ) Result=100.000

Explanation: The macro function SQUARE(x) x*x calculate the square of the given number 'x'. (Eg: 10^2)

Step 1: float s=10, u=30, t=2, a; Here the variable s, u, t, a are declared as an floating point type and the variable s, u, t are initialized to 10, 30, 2.

Step 2: a = 2*(s-u*t)/SQUARE(t); becomes,

=> a = 2 * (10 - 30 * 2) / t * t; Here SQUARE(t) is replaced by macro tot*t .

=> a = 2 * (10 - 30 * 2) / 2 * 2;

=> a = 2 * (10 - 60) / 2 * 2;

=> a = 2 * (-50) / 2 * 2 ;

=> a = 2 * (-25) * 2 ;

=> a = (-50) * 2 ;

=> a = -100;

Step 3: printf("Result=%f", a); It prints the value of variable 'a'.

Hence the output of the program is -100

26
What will be the output of the program?
```c
#include<stdio.h>
#define SQR(x)(x*x)
int main()
{ int a, b=3;
a = SQR(b+2);
printf("%d\n", a);
return 0;  }
```

( ) 25
( ) 11
( ) Error
( ) Garbage value

Explanation: The macro function SQR(x)(x*x) calculate the square of the given number 'x'. (Eg: 10^2)

Step 1: int a, b=3; Here the variable a, b are declared as an integer type and the variable b is initialized to 3.

Step 2: a = SQR(b+2); becomes,

=> a = b+2 * b+2; Here SQR(x) is replaced by macro to x*x .

=> a = 3+2 * 3+2;

=> a = 3 + 6 + 2;

=> a = 11;

Step 3: printf("%d\n", a); It prints the value of variable 'a'.

Hence the output of the program is 11

27
What will be the output of the program?

#include<stdio.h>

#define JOIN(s1, s2) printf("%s=%s %s=%s \n", #s1, s1, #s2, s2);

int main()

{

char *str1="India";

char *str2="BIX";

JOIN(str1, str2);

return 0;

}

( ) str1=IndiaBIX str2=BIX
( ) str1=India str2=BIX
( ) str1=India str2=IndiaBIX
( ) Error: in macro substitution

28

What will be the output of the program?

```c
#include<stdio.h>

#define CUBE(x) (x*x*x)

int main()
{
int a, b=3;

a = CUBE(b++);

printf("%d, %d\n", a, b);

return 0;

}
```

( ) 9, 4
( ) 27, 4
( ) 27, 6
( ) Error

Explanation: The macro function CUBE(x) (x*x*x) calculates the cubic value of given number(Eg: 10^3.)

Step 1: int a, b=3; The variable a and b are declared as an integer type and varaible b id initialized to 3.

Step 2: a = CUBE(b++); becomes

=> a = b++ * b++ * b++;

=> a = 3 * 3 * 3; Here we are using post-increement operator, so the 3 is not increemented in this statement.

=> a = 27; Here, 27 is store in the variable a. By the way, the value of variable bis increemented by 3. (ie: i=6)

Step 3: printf("%d, %d\n", a, b); It prints the value of variable a and b.

Hence the output of the program is 27, 6.

29

What will be the output of the program?

```c
#include<stdio.h>

int main()

{
int y=128;

const int x=y;

printf("%d\n", x);

return 0;
}
```

( )128
( )Garbage value
( )Error
( )0

Explanation: Step 1: int y=128; The variable 'y' is declared as an integer type and initialized to value "128".
Step 2: const int x=y; The constant variable 'x' is declared as an integer and it is initialized with the variable 'y' value.
Step 3: printf("%d\n", x); It prints the value of variable 'x'.
Hence the output of the program is "128"

30

What will be the output of the program?

```c
#include<stdio.h>

#include<stdlib.h>

union employee
{
char name[15];

int age;

float salary; };

const union employee e1;
```

int main()

{ strcpy(e1.name, "K");

printf("%s %d %f", e1.name, e1.age, e1.salary);

return 0; }

( )Error: RValue required
( )Error: cannot convert from 'const int *' to 'int *const'
( )Error: LValue required in strcpy
( )No error

Explanation: The output will be:
K 75 0.000000

31
What will be the output of the program?

#include<stdio.h>

int fun(int **ptr);

int main()

{ int i=10;

const int *ptr = &i;

fun(&ptr);

return 0; }

int fun(int **ptr)

{ int j = 223;

int *temp = &j;

printf("Before changing ptr = %5x\n", *ptr);

const *ptr = temp;

printf("After changing ptr = %5x\n", *ptr);

return 0; }

A. Address of i

Address of j

B. 10
223

C. Error: cannot convert parameter 1 from 'const int **' to 'int **'

D. Garbage value

( ) A
( ) B
( ) C
( ) D

32

What will be the output of the program?

```c
#include<stdio.h>

int main()
{  const int x=5;

const int *ptrx;

ptrx = &x;

*ptrx = 10;

printf("%d\n", x);

return 0;  }
```

( ) 5
( ) 10
( ) Error
( ) Garbage value

Explanation: Step 1: const int x=5; The constant variable x is declared as an integer data type and initialized with value '5'.

Step 2: const int *ptrx; The constant variable ptrx is declared as an integer pointer.

Step 3: ptrx = &x; The address of the constant variable x is assigned to integer pointer variable ptrx.

Step 4: *ptrx = 10; Here we are indirectly trying to change the value of the constant vaiable x. This will result in an error.

To change the value of const variable x we have to use *(int *)&x = 10;

33
What will be the output of the program?

#include<stdio.h>

int main()

{ const int x=5;

const int *ptrx;

ptrx = &x;

*ptrx = 10;

printf("%d\n", x);

return 0; }

( ) i= FFE2 ptr=12 j=FFE4 ptr=24
( ) i= FFE4 ptr=10 j=FFE2 ptr=20
( ) i= FFE0 ptr=20 j=FFE1 ptr=30
( ) Garbage value

34
What will happen if in a C program you assign a value to an array element whose subscript exceeds the size of array?
( ) The element will be set to 0.
( ) The compiler would report an error.
( ) The program may crash if some important data gets overwritten.
( ) The array size would appropriately grow

Explanation: If the index of the array size is exceeded, the program will crash. Hence "option c" is the correct answer.

35

What does the following declaration mean?
int (*ptr)[10]

( ) ptr is array of pointers to 10 integers
( ) ptr is a pointer to an array of 10 integers
( ) ptr is an array of 10 integers
( ) ptr is an pointer to array

36
In C, if you pass an array as an argument to a function, what actually gets passed?
( ) Value of elements in array
( ) First element of the array
( ) Base address of the array
( ) Address of the last element of array

Explanation: The statement 'C' is correct. When we pass an array as a funtion argument, the base address of the array will be passed

37
What will be the output of the program?
```
#include<stdio.h>
int main()
{  int i=1;
if(!i)
printf("India,");
else
{  i=0;
printf("C-Program");
main();  }
return 0;  }
```

( ) prints "IndiaBIX, C-Program" infinitely
( ) prints "C-Program" infinetly
( ) prints "C-Program, India" infinitely
( ) Error: main() should not inside else statement

Explanation: Step 1: int i=1; The variable i is declared as an integer type and initialized to 1(one).
Step 2: if(!i) Here the !(NOT) operator reverts the i value 1 to 0. Hence theif(0) condition fails. So it goes to else part.

Step 3: else { i=0; In the else part variable i is assigned to value 0(zero).

Step 4: printf("C-Program"); It prints the "C-program".

Step 5: main(); Here we are calling the main() function.

After calling the function, the program repeats from step 1 to step 5 infinitely.
Hence it prints "C-Program" infinitely.

38
What will be the output of the program?

#include<stdio.h>

int main()

{ int i=3, j=4, k, l;

k = addmult(i, j);

l = addmult(i, j);

printf("%d %d\n", k, l);

return 0; }

int addmult(int ii, int jj);

{ int kk, ll;

kk = ii + jj;

ll = ii * jj;

return (kk, ll); }

( ) Function addmult()return 7 and 12
( ) No output
( ) No output
( ) None of above

Explanation: There is an error in this statement int addmult(int ii, int jj);. We have to remove the semi-colon, because it was an definition of the function addmult()

39
What will be the output of the program?

```c
#include<stdio.h>
int i;
int fun1(int);
int fun2(int);
int main()
{ extern int j;
int i=3;
fun1(i);
printf("%d,", i);
fun2(i);
printf("%d", i);
return 0; }
int fun1(int j)
{ printf("%d,", ++j);
return 0; }
int fun2(int i)
{ printf("%d,", ++i);
return 0; }
int j=1;
```

( ) 3, 4, 4, 3
( ) 4, 3, 4, 3
( ) 3, 3, 4, 4
( ) 3, 4, 3, 4

Explanation: Step 1: int i; The variable i is declared as an global and integer type.

Step 2: int fun1(int); This prototype tells the compiler that the fun1() accepts the one integer parameter and returns the integer value.

Step 3: int fun2(int); This prototype tells the compiler that the fun2() accepts the one integer parameter and returns the integer value.

Step 4: extern int j; Inside the main function, the extern variable j is declared and defined in another

source file.

Step 5: int i=3; The local variable i is defines as an integer type and initialized to 3.

Step 6: fun1(i); The fun1(i) increements the given value of variable i prints it.
Here fun1(i) becomes fun1(3) hence it prints '4' then the control is given back to the main function.

Step 7: printf("%d,", i); It prints the value of local variable i. So, it prints '3'.

Step 8: fun2(i); The fun2(i) increements the given value of variable i prints it.
Here fun2(i) becomes fun2(3) hence it prints '4' then the control is given back to the main function.

Step 9: printf("%d,", i); It prints the value of local variable i. So, it prints '3'.

Hence the output is "4 3 4 3".

40
What will be the output of the program?

#include<stdio.h>

int func1(int);

int main()

{ int k=35;

k = func1(k=func1(k=func1(k)));

printf("k=%d\n", k);

return 0; }

int func1(int k)

{ k++;
return k; }

( ) k=35
( ) k=36
( ) k=37
( ) k=38

Explanation: Step 1: int k=35; The variable k is declared as an integer type and initialized to 35.

Step 2: k = func1(k=func1(k=func1(k))); The func1(k) increement the value of k by 1 and return it. Here the func1(k) is called 3 times. Hence it increements value of k = 35 to 38. The result is stored in the variable k = 38.

Step 3: printf("k=%d\n", k); It prints the value of variable k "38".