Deyang City, Sichuan Province, 2017-2018 7th Grade Mathematics First Semester Half-Term Test

(Time: 120 minutes, full score 120 points)

Section 1

One, multiple choice (3 points per question, full score 36 points)

1. $-|-2|$ has a value of （）

   A. 2   B. 0   C. ±2   D. -2

2. Monomial $-\dfrac{2\pi x y^2}{3}$ has a coefficient and degree of （）

   A. $\dfrac{2}{3}$, 3   B. $-\dfrac{2}{3}$, 3   C. $-\dfrac{2}{3}\pi$, 3 D. -2 , 2

3. If a and b are opposite numbers, c and d are reciprocals, $|m|=2$, then algebraic expression $m^2 - 3cd + \dfrac{a+b}{m}$

   has a value of （）

   A、-1   B、1   C、-7   D、1 or -7

4. Out of the following, which one is incorrect? （）

   A、If $a=b$, then $1-2a=1-2b$ B、If $ac=bc$, then $a=b$

   C、If $\dfrac{a}{c}=\dfrac{b}{c}$, then $a=b$ D、If $a=b$, then $\dfrac{a}{c^2+1}=\dfrac{b}{c^2+1}$

5. If function $\left(m^2-1\right)x^2 - mx - x + 2 = 0$ is a linear function based on x, then |m - 1| equals （）

   A.0   B.2   C.0 or 2   D. - 2

6. If a＞0，ab＜0，then $|\,b-a-1\,| -|a-b+3|$ has a value of （）

   A、2   B、-2   C、-2a+2b+4   D、2a-2b-4

7. If when $x=1$, whole expression $ax^3 + bx + 7$ has a value of 4, then when $x=-1$, whole expression

   $ax^3 + bx + 7$ has a value of （）

   A. 7   B. 12   C. 11   D. 10

8. Given that $x=-7$ is the solution to $2x-7=ax$, then which one of the following is a false possibility to the

   value of $a - \dfrac{3}{a}$? （ ）

A.-3   B.3   C.2   D$-8\dfrac{2}{3}$

9. A village has 120 hectares of forest land and 60 hectares of dry land. In order to adapt to the adjustment of the industrial structure, part of the dry land needs to be transformed into forest land. After the transformation, the dry land area accounts for 20% of the forest land area. If x hectares of dry land is transformed into forest land, the situation can be written as ( )

A. 60－x=20%（120+x）   B. 60+x=20%×120

C. 180－x=20%（60+x）   D. 60－x=20%×120

10. If k is an integer, then in the function $9x-3=kx+14$ how many values are there for k ?( )

A、2   B、4   C、8   D、16

11. The initial fee of a taxi in a certain city is 5 dollars (the starting price is 3 kilometers and within 3 kilometers), and the fee for each additional kilometer driven is 1.6 dollars. If the taxi was driven for less than 1 kilometer, the fee is the same as if driven for 1 kilometer. When Jacob arrives at the destination by taxi, the meter shows 11.4 dollars, then the distance traveled by this taxi may be ( )

A. 5.5km   B. 6.9km   C. 7.5km   D. 8.1km

12. The picture is a schematic diagram of the hand, mark A, B, C, D between each finger, please follow the direction of the arrow in the picture (A→B→C→D→C→B→A→B→C), starting from A to count consecutive positive integers 1, 2, 3, 4. When counting to 2017, the corresponding letter is ()

A. A   B. B   C. C   D.D

Two, fill in the blanks (3 points per question, full score 18 points)

13. The area of the amount of ocean on earth is 36100000km², use scientific notation to rewrite this number

_____.

14. Given that $4x^{2m}y^{m+n}$ and $3x^6y^2$ are like terms, then m-n=_____.

15. When k=____, algebraic expression $x^3-3kxy-3y^2+\dfrac{1}{3}xy-8$ does not include xy.

16. The purchase price of a brand jeans is a dollars per jean. During the peaks sales season, the sales price is 30% more than the purchase price. After the peak sales season, the product will carry out promotional activities at a 30% discount. At this time, the price of a piece of the product is _____dollars.

17. Function $\dfrac{1}{2}|x-2|-1=5$ has a solution of _____.

18. The speed of the ship in still water is 20km per hour, and the current speed is 4km per hour. It sails downstream from harbor A to harbor B, and then returns to harbor A in 5 hours (not counting the stay time). Find the distance between Harbor A and Harbor B. The distance between the two piers is _____km, and the equation listed to find this was _____.
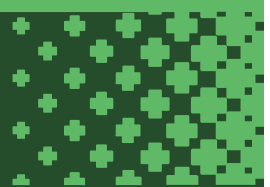
Section 2

One, multiple choice (3 points per question, full score 36 points)

Problem	1	2	3	4	5	6	7	8	9	10	11	12
Answer												

Two, fill in the blanks (3 points per question, full score 18 points)

13、; 14、; 15、;

16、; 17、; 18、.

19．Calculate (4 points per question, full score 16 points)

（1） $-1^4 - (1 - \frac{1}{2}) \div 3 \times [2 - (-3)^2]$ （2） $(\frac{3}{4} - \frac{5}{6} + \frac{4}{9}) \div (-\frac{1}{36})$

（3） $3x^2y - 5xy^2 + 3xy^2 + 7x^2y - 2xy$ （4） $7ab - 3(a^2 - 2ab) - 5(4ab - a^2)$

20. Solve (4 points per question, full score 8 points)

（1） $4y - 3(2 + y) = 5 - 2(1 - 2y)$ （2） $x - \frac{1-x}{3} = \frac{x+2}{6} - 1$

21．(6 points) First simplify, then substitute: $\frac{1}{2}x-2\left(x-\frac{1}{3}y^2\right)+\left(-\frac{3}{2}x+\frac{1}{3}y^2\right)$, Among them x and y satisfy

$$|x-2|+(y+1)^2=0$$

22. (6 points) Given that functions $\frac{x-m}{2}=x+\frac{m}{3}$ and $\frac{x+1}{2}=3x-2$ have solutions that are reciprocals, find the value of m.

23．(6 points) Casey is solving the function $\frac{2x-1}{3}=\frac{x+a}{4}-1$, when the denominator was removed, the -1 on the right side of the equation was multiplied by 12. The solution he got was $x=3$, find the value of a, and solve for the function yourself.

24．(8 points) A and B are 300 km from each other. Alpha starts from A and starts traveling towards B, at a speed of 72 km per hour, when Alpha has traveled 25 minutes, Beta starts from B and starts traveling towards A, at a

spead of 48 km per hour. After how many hours of Beta traveling will Alpha and Beta distance 100 km from each other?

25．(8 points) The costs to enter an amusement park is as shown in the table:

Number of tickets	1～50 tickets	51～100 tickets	101+ tickets
Price per ticket	13 dollars	11 dollars	9 dollars

The school's first grade classes Class（1） and Class （2） total 104 students in going to the amusement park. Class （1） has less people, less than 50 students.
It is estimated that if both classes purchase tickets by class, a total of 1240 dollars will be payable. Question:
（1）How many students are in each class?
（2）How much money can be saved if the two classes are combined and purchased as a group?
（3）If only Class（1）goes to the amusement park, how would you, as the organizer, buy the tickets to pay as least as possible?

26、(8 points) A weaving factory has 200 workers. In order to improve the operation, an additional clothing project has been added. It is known that each person can weave 30 meters per day, or use the woven fabric to make 4 pieces of clothing, and one piece of clothing uses 1.5 meters of cloth. If you sell the cloth directly, you can make a profit of 2 dollars per meter; if you sell the cloth into clothing, you can make a profit of 25 dollars per piece. Each worker can only do one job a day. Now arrange x workers to make clothes, and the rest to weave.
　　(1) The profit made by the company in one day is how many dollars?

　　　　The profit from the remaining cloth is _____ dollars;

　　　　The total profit is ____ dollars;

　　(2) What is the total profit when166 workers are arranged to make clothing?
　(3) Can 167 workers be arranged to make clothes to increase profits? Please explain the reasons of why or why not.

Answer Key

One, multiple choice, (3 points per question, full score 36 points)

Question	1	2	3	4	5	6	7	8	9	10	11	12
Answer	D	C	B	B	B	B	D	C	A	B	B	C

Two, fill in the blanks (3 points per question, full score 18 points)

13、3.61×10^7；14、__4__；15、$\dfrac{1}{9}$；

16、__91%a__；17、__14 or - 10__；18、$\dfrac{x}{20+4}+\dfrac{x}{20-4}=5$.

19. Calculate (4 points per problem, full score 16 points)

（1）$\dfrac{1}{6}$ （2）-13 （3）$10x^2y-2xy^2-2xy$ （4）$-7ab+2a^2$

20. Solve (4 points per question, full score 8 points)

（1）$y=-3$ （2）$x=-\dfrac{2}{7}$

21. (6 points) $x=2, y=-1$ ；Original Equation $= y^2$；When $x=2, y=-1$, $y^2=1$

22. (6 points) $x=1, m=-\dfrac{3}{5}$

23. (6 points) $a=4, x=\dfrac{4}{5}$

24. (8 points) $\dfrac{17}{12}, \dfrac{43}{12}$

25. (8 points)

（1）Class 1 has 48 students, Class 2 has 56 students；（2）104×9=936 dollars, saving 1240-936=304 dollars;

（3）If tickets are bought by 48 students, then it will cost 48×13=624 dollars, If 51 tickets are bought, then 51×11=561 dollars, so buying 51 tickets is more efficient

26、(8 points) （1）100x；(12000-72x)；(12000+28x)

(2)16648 dollars

（3）When 167 workers are arranged to make clothing, substitute $x=167$, the remaining cloth is:

$30(200-x)-4x\times1.5=30(200-167)-4\times167\times1.5=-12$ meters, so you cannot arrange 167 workers to make clothing