Luzhou 2017 7th Grade Semester One Exams
Mathematics

Full score: 120 points Given time: 120 minutes

One, multiple choice (12 questions, 3 points per question, full score 36 points)

1. If traveling east $3km$ is recorded as $+3km$, then traveling west $2km$ should be recorded as（   ）.

    A．$+2km$ B．$-2km$ C．$+3km$ D．$-3km$

2. $-\dfrac{1}{5}$ has an opposite value of（   ）.

    A．$\dfrac{1}{5}$ B．$-\dfrac{1}{5}$ C．-5 D．5

3. 1738000 written in scientific notation is（   ）

    A．0.1738×10^6 B．173.8×10^6 C．1.738×10^6 D．1.738×10^7

4. Monomial $-\dfrac{2a^2b}{3}$ has first a coefficient and second a degree of（   ）.

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

5. Which of the following equations is valid?（   ）.

    A．$2x+3y=5xy$ B．$5x-3x=2x^2$

    C．$7y^2-5y^2=2$ D．$9a^2b-4a^2b=5a^2b$

6. Algebraic expression y^2+2y+7 has a value of 6 .Then, the value of $4y^2+8y-5$ is（   ）.

    A．9 B．-9 C．18 D．-18

7．The following is an addition and subtraction of whole expressions problem that Filly was working on.

$\left(-x^2+3xy-0.5y^2\right)-\left(-0.5x^2+4xy-1.5y^2\right)=-0.5x^2$ ▮ $+y^2$ She accidentally smudged the shaded part with

ink. Then the monomial covered by the ink should be（   ）.

    A．$-7xy$ B．$-xy$ C．$7xy$ D．xy

8. Which of the following is correct?（   ）.

    A．The only number whose square is itself 0 B．The only number whose cube is itself is 0 and 1

    C．All numbers whose absolute value is itself is positive   D．The only number whose reciprocal is itself

is ±1

9．Which of the following is correct?（   ）.

A. If $\dfrac{a}{c}=\dfrac{b}{c}$, then $a=b$
B. If $ac=bc$, then $a=b$

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

10. If function $6x-3=2-3x$ (with x being the variable) has a solution same as $6-2k=2x+6$ (k is a coefficient) then the value of k is（ ）．
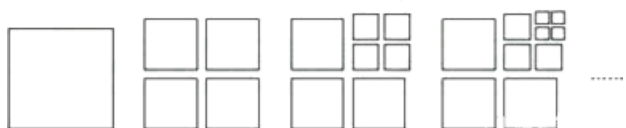
A. $\dfrac{5}{9}$ 　　　B. $-\dfrac{5}{9}$ 　　　C. $\dfrac{9}{5}$ 　　　D. $-\dfrac{9}{5}$

11. Cut the square in figure ① to get figure ②. Cut out a square in figure ② to get figure ③. If this goes on, the total number of squares in the first figure is ( )

A. 20 　　B. 22 　　　C. 24 　　　D. 26

12. If $|a|=1$, $|b|=4$, $|c|=8$, then $a+b+c$ has（ ）different possible sums.

A. 8 　　　　B. 6 　　　C. 4 　　　D. 9

Two, fill in the blanks (4 questions, 3 points per question, full score 12 points)

13. $3.14159\approx$ (Accurate until 0.001)

14. Compare: $-\dfrac{3}{4}$ 　　 $-\dfrac{5}{6}$.

15. If $\dfrac{1}{3}|x-3|+(y+4)^2=0$, then $y^x=$____.

16. A and B are two points on the number line. If A represents 2, and $AB=3$, then the number B is represents is _____.

Three, calculation problems (8 questions, full score 72 points)

17. (14 points) Calculate: （1）$12-(-18)+(-7)$ 　　　　（2）$\left(-\dfrac{3}{4}\right)\times\left(-1\dfrac{1}{2}\right)\div\left(-2\dfrac{1}{4}\right)$

（3）$16\div(-2)^3-(-\dfrac{1}{8})\times(-4)$ 　　　（4）$-2^2\div\left(-\dfrac{1}{2}\right)-\left(1\dfrac{3}{8}+2\dfrac{1}{3}-3\dfrac{3}{4}\right)\times48$

18. (8 points) Simplify: （1）$4x^2-8x+5-3x^2+6x-2$

（2）$-2y^3+\left(3xy^2-x^2y\right)-2\left(xy^2-y^3\right)$

19. (8 points) Solve: （1）$2x-19=7x+6$ （2）$\dfrac{1}{7}x-6=10x+9$

20. (6 points) Simplify and then substitute: $5(3a^2b-2ab^2)-4(-2ab^2+3a^2b)$, among them $a=-2$, $b=1$.

21. (6 points) Given that function $(m-2)x^{|m|-1}+16=0$ is a linear function, find the value of m.

22. (8 points) Given that: $A=2a^2+3ab-2a-1$, $B=-a^2+ab-1$.
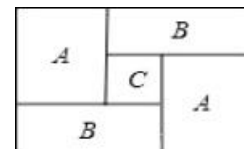
 （1） Find the value of $4A-(3A-2B)$;

 （2） If $A+2B$ doesn't have anything to do with the value of a, find the value of b.

23. (10 points) As shown, a rectangle is split A, B, A, B, and C these 5 areas. Areas A are squares with a side length of a. Area C is a square with a side length of b.

 （1） List a simplified algebraic expression expressing the perimeter of area B.
 （2） List a simplified algebraic expression expressing the perimeter of the entire figure.
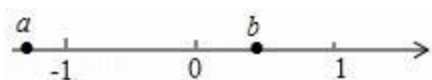 （3） If $a=20$, $b=10$, find the area of the entire figure.

24. (12 points) Rational numbers a and b are shown on the number line as follows.

（1）Use "<" to connect 0、$-a$、$-b$、-1

（2）Simplify: $|a| - 2|a+b-1| - \dfrac{1}{3}|b-a-1|$

（3）If $c \cdot (a^2 + 1) < 0$, and $c + b > 0$, find the value of $\dfrac{|c+1|}{c+1} + \dfrac{|c-1|}{c-1} - \dfrac{|a-b+c|}{a-b+c}$.

Answer Key

One, multiple choice

#	1	2	3	4	5	6	7	8	9	10	11	12
Ans.	B	A	C	D	D	B	B	D	A	B	B	A

Two, fill in the blanks

13. __3.142__   14. $>$

15. __-64__   16. __-1 or 5__

Three, calculation problems

17. （1）Answer= 23 （2）Answer= $-\dfrac{1}{2}$ （3）Answer= $-\dfrac{5}{2}$ （4）Answer= 10

18. （1）Answer= x^2-2x+3 （2）Answer= xy^2-x^2y

19. （1）$x=-5$ （2）$x=-\dfrac{35}{23}$

20. Original equation= $3a^2b-2ab^2$ When $a=-2$ and $b=1$, original equation= 16

21. $m=-2$，$x=4$

22. （1）Original equation= $5ab-2a-3$ （2）$b=\dfrac{2}{5}$

23. （1）$4a$ （2）$8a$ （3）$S=1500$

24. （1）$-1<-b<0<a$；

   （2）Original equation= $\dfrac{4}{3}a+\dfrac{5}{3}b-\dfrac{5}{3}$；

   （3）Original equation= 1