2017-2018 7th Grade Mathematics Volume 1 Mid-term Mock Paper

One, multiple choice:

1. The standard weight for a sack of rice is 10kg. A rice sack weighing 10.5kg is recorded as +0.5kg. Therefore, a rice sack weighing 9.8kg should be recorded as（ ）

A. －9.8kg　　B. +9.8kg　　C. －0.2kg　　D. 0.2kg

2. Which of the following estimations on 0.06019 is incorrect? ( )

A. 0.1 (Accurate to 0.1) B. 0.06 (Accurate to 0.0001)

C.0.06(Accurate to 0.01) D. 0.0602 (Accurate to 0.0001)

3. 38 billion written in scientific notation is( )

A. 3.8×10^{9}　　B. 3.8×10^{10}　　C. 3.8×10^{11}　　D. 3.8×10^{12}

4. If a and b are rational numbers, with a＞0,b＜0, and |a|＜|b|, then a、b、-a、-b ordered from least to greatest should look like ( )

A. b＜-a＜-b＜a　　B. b＜-b＜-a＜a

C. b＜-a＜a＜-b　　D. -a＜-b＜b＜a

5. The root of the equation 2(x－1)-a=0 about x is 3, then the value of a is ( )

A. 4　　B. －4　　C. 5　　D. －5

6. Which of the following equations are valid? ( )

A. 3a+2b=5ab　　B. $2a^3+3a^2=5a^5$　　C. $4a^2b-3ba^2=a^2b$　　D. $5a^2-4a^2=1$

7. When solving $\frac{x-1}{2}-\frac{2x+3}{3}=1$, after removing the denominators it should look like（ ）

A. $3(x-1)-2(2x+3)=6$　　B. $3x-3-4x+3=1$

C. $3(x-1)-2(2x+3)=1$　　D. $3x-3-4x+3=6$

8. A number raised to an even power has an result that's positive. What number is this?（ ）

A. positive　　B. negative　　C. positive or negative　　D. rational

9. Given that algebraic expression x - 2y has a value of 5, then the value of - 3x+6y+1 is ( )

A. 16 B. - 14 C. 14 D. - 16

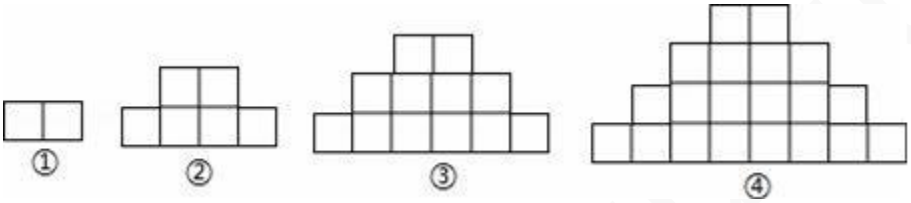
10. -0.5 has an absolute value of ( )

A. 0.5 B. -0.5 C. 2 D. - 2

11. If a is a rational number that doesn't equal 0, then the result of (a - |a|)÷2a is ( )

A. 0 or 1 B. 0 or - 1 C. 0 D. 1

12. As shown in the figure, each figure is composed of rectangles of the same size according to certain rules. Figure ① has an area of 6cm^2, Figure ② has an area of 18cm^2, Figure ③ has an area of 36cm^2，…，then the area of Figure ⑥ is ( )



A. 84cm^2 B. 90cm^2 C. 126cm^2 D. 168cm^2

Two, fill in the blanks:

13. The following data records how much a certain area was affected by snowfall. The temperature of a morning in December was - 13℃. By noon it had gone up 10℃, and then regressed 8℃ in the evening. The temperature of the evening was _____℃.

14. If |x+1| and |2y+3| are opposite numbers, then x=_____，y=_____，x+y=_____.

15. Polynomial____ and m^2+m-2 has a sum of m^2-2m.

16. If $|a+5|+(b-2)^2=0$, then $(a+b)^{2017}$=_____.

17. A man who participated in the local cooperative medical care program is hospitalized. The operation fee is reimbursed 80% on a dollars; The rest costs b dollars, which can be reimbursed 60%. The man can reimburse a total of _____dollars.

18. Calculate: $3^1+1=4, 3^2+1=10, 3^3+1=28, 3^4+1=82, 3^5+1=244, \ldots$, Observe the pattern and predict the units digit of 3^{2015}-1: _____.

Three, calculation:

19. Calculate: 12 - (- 16)+(- 4) - 5

20. Calculate: $1\div(1\frac{1}{6}-8\frac{3}{4}\times\frac{2}{77})+\frac{7}{18}\div\frac{14}{27}$

21. Calculate: $-2^2+(-3)^2\div(-4.5)+|-4|\times(-1)^{2015}$.

22. Calculate: $(-\frac{1}{4})^2\div(-\frac{1}{2})^4\times(-1)^6-(1\frac{3}{8}+1\frac{1}{3}-2\frac{3}{4})\times 48$.

23. Simplify: $7a^2b+(-4a^2b+5ab^2)-(2a^2b-3ab^2)$.

24. Simplify: $4x^2+5xy-2(2x^2-xy)$

Four, short answer questions:

25. Plot the following numbers 3^2, $(-2)^3$, 0, $\left|-\frac{1}{2}\right|$, $-(2-5)$, $+(-1)$ on the number line, and order them from least to greatest.

26. First simplify, then substitute: $-2x^2-\frac{1}{2}[3y^2-2(x^2-y^2)+6]$, among them x=1，y=﹣2.

27. A maintenance team took a car to repair the line on the east-west road. Traveling east is recorded as positive. One day, the team started from their base, point A, and traveled on the road as recorded: (unit: km): +15，﹣2，+5，﹣1，+10，﹣13，﹣2，+12，﹣5，+4，+6，Find:

（1）By the end of the day, does the team return back to A? If it returns to site A, please explain the reason; if it does not return to site A, please specify the last location of the maintenance team;

（2）Which point was the closest to A?

（3）If the car consumes 3 liters of fuel per kilometer, and the fuel storage is 180 liters at the start of work, does it need to be refueled halfway through the end of work, and if so, how many liters should be added at least? If you don't need to refuel, how many liters of gasoline are left when you finish work? (Assume that the car can be driven until the fuel level is 0）

28. A certain math club uses a type of accounting method. Every time they have an income of 200 dollars, it is recorded as -180；Every time they spend 200 dollars, it is recorded as +220．After they spend 100 dollars, how is it recorded? When they have an income of 100 dollars, how is it recorded? Explain with reasoning.

29. Given that $|a+2|+(b+1)^2+(c-\frac{2}{3})^2=0$, find the value of $5abc-\{2a^2b-[3abc-(4ab^2-a^2b)]\}$.

Answer Key

1.C

2.B.

3.A

4.C.

5.A

6.C

7.B.

8.A

9.A.

10.C

11.A

12.C

13.Answer: ﹣11

14.Answer: ﹣1；﹣1.5；﹣2.5.

15.Answer: ﹣3m+2.

16.Answer: -3^{2017}.

17.Answer: 0.8a+0.6b；

18.Answer: 6；

19.Original equation=28﹣4﹣5=19

20.0;

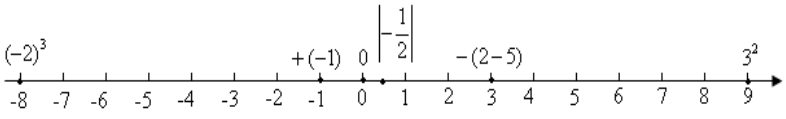
21.﹣10.

22.Original equation=$\frac{1}{16}$×16×1﹣（$\frac{11}{8}$×48+$\frac{4}{3}$×48﹣$\frac{11}{4}$×48）=1﹣（66+64﹣132）=1﹣（﹣2）=3.

23.Original equation=a^2b+8ab^2

24.Original equation=7xy

25. S: $3^2=9,\quad (-2)^3=-8,\quad 0,\quad \left|-\frac{1}{2}\right|=\frac{1}{2},\quad -(2-5)=3,\quad +(-1)=-1$

Plotted on the number line: 

From least to greatest: $(-2)^3 < +(-1) < 0 < \left|-\frac{1}{2}\right| < -(2-5) < 3^2$

26. S:（1）Original equation= - $2x^2$ - $\frac{3}{2}y^2$+x^2 - y^2 - 3= - x^2 - $\frac{5}{2}y^2$ - 3，
When x=1 and y= - 2, original equation= - 1 - 10 - 3= - 14；

27. S:（1）15 - 2+5 - 1+10 - 13 - 2+12 - 5+4+6=29m, so the team was 29 km from A at the end of the day.
（2）15 - 2+5 - 1+10 - 13 - 2=12km, so by the end of the sixth time moving, they were 12km from A.
（3）|+15|+| - 2|+|+5|+| - 1|+|+10|+| - 13|+| - 2|+|+12|+| - 5|+|+4|+|+6|=75，
The car can travel 60km at most, it still has 15km left to drive, it needs to refuel at least 15×3=45 liters.
28.120 －80 以 20 为标准，收入多少用 20 减多少，用去多少用 20 加多少.

29. S: Using the properties of non-negativity: a=-2,b=-1,c=$\frac{2}{3}$, original equation=8abc-a^2b-4ab^2=$\frac{4}{3}$.