2017-2018 School Year 7th Grade Mathematics Volume 1 Final Mock Paper

One, multiple choice:

1. 34 000 000 written in scientific notation is( )

A. 0.34×10^8 B. 3.4×10^6 C. 34×10^6 D. 3.4×10^7

2. As shown in Figure 1, cut four sides of a regular quadrangular pyramid (the base is square and the four side edges are equal) to get Figure 2, then the four sides that are cut may be（ ）

A. PA，PB，AD，BC B. PD，DC，BC，AB

C.PA，AD，PC，BC D. PA，PB，PC，AD

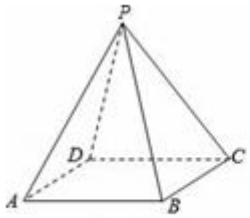


Figure 1

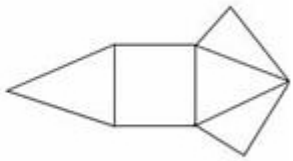


Figure 2

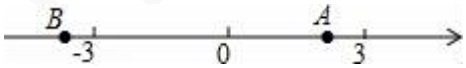
3. Given that $2x^3y^2$ and $-x^{3m}y^2$ are like terms, then the value of 4m－24（ ）

A. 20 B. －20 C. 28 D. －28

4. Function 4(a-x)-4(x+1)=60 has the solution x=-2, then the value of a is ( )

A · 22 B · -14 C · 18 D · 12

5. The positions of points A and B on the number line are as shown. The numbers they each represent is a and b. Which of the following statements is correct? ONE: b－a＜0；TWO: a+b＞0；THREE: |a|＜|b|；FOUR: ab＞0（ ）



A. ONE、TWO B. THREE、FOUR C. ONE、THREE D. TWO、FOUR

6. Which of the following are correct? ( )

A · $3a+2b=5ab$ B · $-4xy+2xy=-2xy$

C · $3y^2-2y^2=1$ D · $3x^2+2x=5x^3$

7. The following four production and life phenomena can be explained by "the closest distance between two points is the line segment between them". ( )

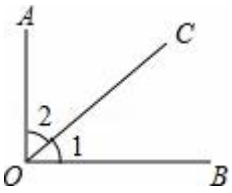
A · Two nails are required to fasten a wooden strip to a wall

B · When planting trees, as long as the positions of two trees are determined, the straight line where the same row of trees is located can be determined.

C · Running wires from ground A to ground B, going along line AB is always possible

D · When shooting at a target, the eyes should be on the same line as the sight and the bullseye on the gun

8. As shown, OA⊥OB, if ∠1=40° then ∠2 has a measure of（ ）



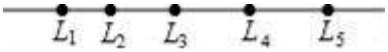
A. 20° B. 40° C. 50° D. 60°

9. When an analog clock reaches 3:30, the smaller angle between the minute and hour hand is ( )

A · 75° B · 80° C · 85° D · 90°

10. As shown in the figure, one worker is working at each of the points L_1、L_2、L_3、L_4、L_5 on the assembly line. A parts supply station needs to be set up on one of these points on the assembly line, also so that the five workers have to walk the minimal distance possible each to get to the supply station. The point where the parts

supply station needs to be set up is （ ）



A. L_2 B. L_3 C. L_4 D. It doesn't matter the spot; it's all the same

11. Our city has taken a number of measures to reduce smog weather. One example is greening the main road in the urban area. Now it is planned to plant ginkgo trees on one side of a certain road. It is required to plant one tree at each end of the road, and every two trees are equally spaced. If 1 plant is planted every 5 meters, there will be 21 saplings missing; If you plant 1 tree every 6 meters, the saplings are just used up. If there are x saplings, the correct function about this scenario would be ( )

A · 5(x+21 - 1)=6(x - l) B · 5(x+21)=6(x - l)

C. 5(x+21 - 1)=6x D · 5(x+21)=6x

12. Observe the following pattern:

When n=1, $S_1=1^3=1=1^2$;

When n=2, $S_2=1^3+2^3=9=3^2$;

When n=3, $S_3=1^3+2^3+3^3=36=6^2$;

When n=4, $S_4=1^3+2^3+3^3+4^3=100=10^2$;

...

Then the relationship between S_n and n is（ ）

A. $\frac{1}{4}n^4+\frac{1}{2}n^3$ B. $\frac{1}{4}n^4+\frac{1}{2}n^2$ C. $\frac{1}{4}n^2(n+1)^2$ D. $\frac{1}{2}n(n+1)^2$

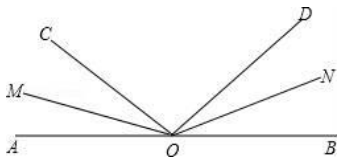
Two, fill in the blanks:

13. Given that: |x|=3, |y|=2, and xy＜0, then x+y=_____.

14.35.36 degrees=__degrees__minute of an arc__ second of an arc.

15. Two different points on a plane define a line, and three different points define at most three lines. If there are 16 different points in the plane, at most _____ straight lines can be determined.

16. As shown, ∠AOB is a straight angle. ∠AOC=30° · ∠BOD=60° · OM and ON are each the bisectors of ∠AOC and ∠BOD. ∠MON measures ____ degrees.



17. Given that ∠α=36°14′25″, then the complementary angle of ∠α would measure____.

18. The series $-\frac{1}{2}, \frac{2}{5}, -\frac{3}{10}, \frac{4}{17}$, ... goes on in a pattern. The 9 th number is_____.

Three, short answer questions:

19. $2(-3xy+x^2)-[2x^2-3(5xy-2x^2)-xy]$

20. Solve for x: $x-\frac{x-2}{5}=\frac{2x-5}{3}-3$

21. Calculate: 32°45′48″+21°25′14″.

22. Simplify : $5(3x^2y-xy^2)-4(-xy^2+3x^2y)$

23. Given that $|x-y|=y-x$, and $|x|=3,|y|=4$, find the value of $(x+y)^3$

24. A cistern has two inlet pipes, A and B, and a drain pipe C. Open pipe A alone to fill the pool for 6 hours; open pipe B alone for 8 hours to fill the pool, and open pipe C alone for 9 hours to fill the pool with water. For emptying, if the A and B pipes are opened at the same time for 2 hours, and then the C pipe is opened, how many hours can the pool be filled after opening the C pipe?

25. |4 - (- 2)| represents the absolute value of the difference between 4 and - 2, which can actually be understood as the distance between the two points corresponding to the two numbers 4 and - 2 on a number line; the same The rationale |x - 3| can also be understood as the distance between the two points corresponding to the two numbers x and 3 on the number line.

（1）Find |4 - （ - 2）|=_____.

（2）If |x - 2|=5, then x=_____

（3）Similarly, |x - 4|+|x+2|=6 represents the sum of the distances from the point corresponding to the rational number x on the number axis to the two points corresponding to 4 and -2. Find all the possible integers for x that satisfy the condition |x - 4|+|x+2|=6: _____.

Answer Key

1.A

2.B

3.D

4.C

5.B

6.A

7.C

8.答案为：A．

9.B

10.A

11.C

12.C

13. S: ∵|x|=3，|y|=2，∴x=±3，y=±2，∵xy＜0，∴the sign of xy is opposite

①When x=3，y=﹣2，x+y=1；②When x=﹣3，y=2，x+y=﹣1．

14.Answr: 35 degrees, 21 minutes of an arc, 36 seconds of an arc

15. Answer: 120．

16. Answer: 135.

17. Answer: 53°45′35″.

18.Answer: $-\frac{9}{82}$.

19.$10xy-6x^2$

20.-34

21.Original Equation=53°70′62″=54°11′2″.

22.$3x^2y-xy^2$;

23.

$$S:\ \because |x|=3, |y|=4$$
$$\therefore x=\pm 3, y=\pm 4 \cdots\cdots\cdots 2\ points$$
$$\because |x-y|=y-x$$
$$\therefore x-y<0$$
$$\therefore x=3, y=-4\ or\ x=-3, y=-4 \cdots\cdots\cdots 2\ points$$
$$When\ x=3, and\ y=-4, (x+y)^3=(3-4)^3=-1$$
$$When\ x=-3, y=-4, (x+y)^3=(-3-4)^3=-343$$

24.

S: Let the amount of hours pipe C has opened be x hours.

Therefore, a function can be set: $\left(\frac{1}{6}+\frac{1}{8}\right)(x+2)-\frac{x}{9}=1$

The solution of this function is: x = 2 4/13

A: Pipe C has been open for 2 4/13 hours.

25. S:（1）∵ The distance between the numbers 4 and －2 on the number line is 6, ∴|4－（－2）|=6.

（2）|x－2|=5 represents that the number x and 2 on the number line has a distance of 5,

∵－3 and 7 both are 5 units away from 2 on the number line, ∴so |x－2|=5，and x=－3 或 7.

（3）∵4 and －2 have a distance of 6 units between them，

∴ The whole numbers that satisfy the condition |x－4|+|x+2|=6 are the whole numbers in between－2 and 4 (including －2 and 4),

∴ The whole numbers are－2、－1、0、1、2、3、4.

Correct answer: 6 numbers；－3, 7,－2、－1、0、1、2、3、4.