

Name: \_\_\_\_\_

Date: \_\_\_\_\_

1. Which of the following is a rational number?

- A.  $\sqrt{2}$     B.  $\sqrt{13}$     C.  $\sqrt{17}$     D. 23

2. Which of the following numbers can be classified as a whole number, natural number, integer, and rational number?

- A. 4    B. -78    C. 1.5    D. 0

3. Which of these decimals represent(s) a *rational* number?

- I. 0.0787878...  
 II. 5.432432...  
 III. 1.23456...  
 IV. 4.45345345...

- A. IV only                      B. I, II and IV only  
 C. II only                        D. III only

4. A *rational* number is a number that is—

- A. terminating or repeating  
 B. non-terminating and repeating  
 C. non-terminating and non-repeating  
 D. none of these

5. An *irrational* number is a number that is—

- A. terminating or repeating  
 B. non-terminating or repeating  
 C. non-terminating and non-repeating  
 D. none of these

6. Classify the following list of real numbers by category. (Some numbers may fit in more than one category.)

- 7     $\frac{1}{2}$     -0.6    1.67342...  
 $\sqrt{25}$      $3^2$      $\frac{5}{11}$     12     $\sqrt{3}$     0

<u>Whole</u>	<u>Integer</u>	<u>Rational</u>	<u>Irrational</u>

7. Place a mark in every box that describes the number.

Number	Real	Irrational	Rational	Integer
$\frac{15}{16}$				
$\sqrt{121}$				
$ - \pi $				
$-3\frac{5}{8}$				
$-4\sqrt{1}$				
$\sqrt{7}$				

Give reasons for your sorting.

8. Simplify:  $-4(a - 3)$

- A.  $-4a - 12$                       B.  $-7a$   
 C.  $-a$                                       D.  $-4a + 12$

9. Simplify:  $2 + 4(x + 6)$

- A.  $4x + 26$                       B.  $4x + 8$   
 C.  $6x + 36$                       D.  $6x + 6$

10. Simplify:  $(3x + 2)4 + 2x$

- A.  $14x + 8$                       B.  $22x$   
 C.  $5x + 8$                       D.  $13x$

11. Which expression is equal to  $3(5x - 6) - 2(4x + 5)$ ?

- A.  $7x - 1$                       B.  $9x - 1$   
 C.  $9x - 13$                       D.  $7x - 28$

12. Simplify:  $(7x - 5) - (3x - 5)$

- A.  $4x$                                       B.  $4x - 10$   
 C.  $4x^2$                                       D.  $4x^2 - 10$

13. Simplify:  $(3x - 4y) + (2x - 5y)$

- A.  $5x - y$                       B.  $5x - 9y$   
 C.  $6x + 20y$                       D.  $6x^2 + 20y^2$

14. What is the solution to the following equation?

$$2(3x + 5) - 2x + 2 = 0$$

- A.  $x = -3$                       B.  $x = -2$   
C.  $x = 1$                          D.  $x = 2$

15. Solve:  $x + 3(6 - x) = 20$

- A.  $-2$                       B.  $-1$                       C.  $1$   
D. no solution

16. Solve:  $17j + 22 = -23 + 2j$

- A.  $-3$                       B.  $-2\frac{1}{9}$                       C.  $\frac{1}{15}$                       D.  $5$

17. What is the value of  $x$  in the following equation?

$$4(2 - x) + 15 = 3(x + 3)$$

- A.  $2$                       B.  $3$                       C.  $4\frac{1}{2}$                       D.  $5$

18. The lengths of two sides of a parallelogram are consecutive even integers and the perimeter of the parallelogram is 36 cm. What is the length of the longer side?

- A. 8 cm                      B. 9 cm                      C. 10 cm                      D. 20 cm

19. Mr. Gerber wants to buy granola bars and saw the following information.

**Granola Bars**

Number of Boxes	Number of Granola Bars
1	6
2	12
3	18
4	?

How many granola bars are in 4 boxes?

- A. 13                      B. 20                      C. 24                      D. 60

20. Marion is making shirts for a school play. She puts 3 buttons on every shirt that she makes. Which table shows how many buttons that she will use to make 5 shirts, 7 shirts, and 10 shirts?

A. 

Shirts	Buttons
5	10
7	15
10	20

B. 

Shirts	Buttons
5	15
7	18
10	21

C. 

Shirts	Buttons
5	15
7	21
10	30

D. 

Shirts	Buttons
5	3
7	9
10	18

21. The table shows the toothpaste tube fill rate of one machine.

**Toothpaste Tube Filling**

<b>Minutes</b>	2	4	6	8	10
<b>Tubes</b>	80	160	240	320	400

Which of these describes the fill rate per minute?

- A. 20 tubes                      B. 40 tubes  
 C. 80 tubes                      D. 400 tubes
22. The ratio of cars to trucks in the parking lot is 5 to 4. Which of these could be the actual number of cars and trucks?
- A. 15 cars, 20 trucks      B. 20 cars, 24 trucks  
 C. 8 cars, 10 trucks      D. 15 cars, 12 trucks

23. At a local hospital 4 out of every 9 doctors are women. If there are 126 doctors at the hospital, how many are women?

A. 56      B. 60      C. 68      D. 84

24. Simplify  $8 - 4 \cdot 2 + 5$  using the correct order of operations.

A. 0      B. 5      C. 13      D. 28

25. Simplify:  $\frac{3 + 3 \cdot 3}{3}$

A. 2      B. 4      C. 6      D. 9

26. What is  $4n + 10n$ , if  $n = \frac{1}{2}$ ?

- A. 7      B. 14      C. 15      D. 28

27. Given  $a = 48$  and  $b = \frac{a}{8} + 3$ .

What is the value of  $b$ ?

- A.  $\frac{45}{8}$       B. 9      C. 11      D. 37

28. Evaluate:  $3a^2 - 4a + 2$  when  $a = 2$

- A. -12      B. -2      C. 6      D. 10

29. If  $a = 4$ , what is the value of  $4a^2 - 7a - 1$ ?

- A. 3      B. 30      C. 35      D. 58

30. The cost of the senior trip is \$36 per student. The total cost of the trip is  $C = 36n$  dollars, where  $n$  is the number of students. What is the cost if 300 students go on the senior trip?

- A. \$1080      B. \$1200  
C. \$10,800      D. \$12,800