

## COMPETITION TEST 1

4. The ratio of boys to girls in a classroom is 10:15. If there are 80 boys in the classroom, how many girls are there?

A) 60

B) 100

C) 120

D) 150

5. How many diagonals does a regular square and octagon have?

A) 10

B) 15

C) 18

D) 22

6. Find the sum:  $1 + 2 + 3 + 4 + 5 + 6 + \dots + 89 + 90$ .

A) 3, 095

B) 4, 095

C) 5, 095

D) 6, 095

## COMPETITION TEST 1

7. What is the value of  $2023^2 - 2022^2$ ?

A) 3, 000

B) 3, 850

C) 4, 045

D) 4, 85

8. If 3 pencils and 1 eraser cost \$10 and while 3 erasers and 1 pencil cost \$30, how much one pencil and one eraser cost?

A) \$5

B) \$10

C) \$12

D) \$15

9. Bag has 4 green marbles, 10 blue marbles and 6 yellow marbles. What is the least number of marbles that Vera needs to take out in to ensure that she has at least 1 yellow marbles?

A) 9

B) 12

C) 14

D) 15

## COMPETITION TEST 1

**10.** The length of a rectangular is four more than twice its width. If the perimeter of the rectangular is 72m, what is the area of rectangular?

A)  $72\text{m}^2$

B)  $120\text{m}^2$

C)  $240\text{m}^2$

D)  $336\text{m}^2$

**11.** Nora is 6 years younger than twice her sister age. If Nora is 24, how old is Vera?

A) 9

B) 12

C) 15

D) 18

**12.** The sum of four consecutive integers is 106. What is the biggest of these integers?

A) 27

B) 28

C) 29

D) 30

## COMPETITION TEST 2

1. What is Nora's average speed on her drive to home, if she drives halfway at 45mph and bike the rest of the way at 15mph?

A) 20mph

B) 22.5mph

C) 25mph

D) 30mph

2. The sum of 4 consecutive odd integers is equal to 6 times of the smallest number. What is the sum of the 4 integers?

A) 33

B) 34

C) 35

D) 36

3. Vera can clean a house in 12 hours. Working together, Vera and Nora take only 4 hours to clean a house. How long would it take Nora to clean a house alone?

A) 3

B) 4

C) 5

D) 6

## COMPETITION TEST 2

4. The graph of the equation  $3x + 2y = b$  pass through to the point  $(-4, b)$ . Find  $b$ .
- A) 12                                      B) 13                                      C) 14                                      D) 15
5. What is the slope of the line perpendicular to the graph of the equation  $\frac{1}{2}x + \frac{1}{3}y = 12$ .
- A)  $\frac{1}{3}$                                       B)  $\frac{2}{3}$                                       C)  $\frac{3}{2}$                                       D) 3
6. The sum of two numbers is 45 and their difference is 15. What is the bigger of the two numbers?
- A) 10                                      B) 15                                      C) 25                                      D) 30

## COMPETITION TEST 2

7. Simplify  $[3x^{-5}]^{-3}$

A)  $\frac{1}{27}x^{15}$

B)  $\frac{1}{9}x^{15}$

C)  $3x^{15}$

D)  $27x^{15}$

8. Simplify:  $\sqrt{1+2+3+4+5+6+\dots+36}$

A) 333

B)  $\sqrt{333}$

C) 666

D)  $\sqrt{666}$

9. Solve for x:  $3^x = [27^{-\frac{1}{3}} \cdot 81^{\frac{1}{4}}]^4$ ,

A) -1

B) 0

C) 1

D) 2

## COMPETITION TEST 2

10. If the  $2^x = 3$ , what is the value of  $32^{3x+2}$ ?

A)  $2^{10}$

B)  $3^{15}$

C)  $2^{10} \cdot 3^{15}$

D)  $2^{15} \cdot 3^{10}$

11. Find the sum  $\frac{1}{2} + \frac{1}{2^2} + \frac{1}{2^3} + \frac{1}{2^4} + \frac{1}{2^5} \dots$

A) 0

B) 1

C) 2

D)  $\frac{1}{2}$

12. Simplify:  $\sqrt{12 + \sqrt{12 + \sqrt{12 + \dots}}}$

A) 3

B) 4

C) 5

D) 6

## COMPETITION TEST 3

1. Simplify:  $\frac{15}{2 + \frac{15}{2 + \frac{15}{2 + \dots}}}$ .

A) 1

B) 2

C) 3

D) 5

2. In a school 15 students attending science club, 25 students attending robotics club, 10 students attending both clubs and 6 students don't attending any clubs. How many students are in the school?

A) 12

B) 18

C) 30

D) 36

3. Which of following is / are divisible by 11?

A) 9,843

B) 5,298

C) 2,571

D) 9,581



## COMPETITION TEST 3

4. What base of 10 integers is represented by  $(1,256)_4$ ?

A) 120

B) 121

C) 122

D) 123

5. Convert  $0.\overline{45}$  in simplest fraction form.

A)  $\frac{5}{11}$

B)  $\frac{5}{9}$

C)  $\frac{4}{9}$

D)  $\frac{7}{11}$

6. Suppose  $\frac{x-5}{y+3} = \frac{1}{7}$  and  $\frac{y+1}{5x} = 1$ , Find x.

A) 12

B) 15.5

C) 17.5

D) 19.5

## COMPETITION TEST 3

7. Vera added two different prime together and got 42. What were there?

A) 37 and 5

B) 35 and 7

C) 39 and 3

D) 31 and 13

8. Suppose  $180 = 2^a \cdot 3^b \cdot 5^c$  and  $a$ ,  $b$ , and  $c$  are integers. Find  $a + b + c$ .

A) 3

B) 5

C) 7

D) 9

9. What is the sum of all of factor of 50?

A) 75

B) 80

C) 93

D) 103

## COMPETITION TEST 3

10. For what value of A is 4 digit number 947N divisible by 11.

A) 1

B) 2

C) 3

D) 4

11. The perimeter of a ractangle is 48m. If the width of the rectangle is three times the length, what is the width?

A) 6m

B) 9m

C) 15m

D) 18m

12. Simplify:  $3(3x - 1) + 4x - 5(2x - 1) + 15 - 9x$ .

A)  $-6x + 17$

B)  $6x + 17$

C)  $-3x + 27$

D)  $-x + 17$