第六套

1. A teacher wants to make a test containing 20 verbal and 30 math questions. Each verbal question is to be allotted 45 seconds to complete and each math question is to be given 1 minute 20 seconds. How many minutes should she allow for the whole test?

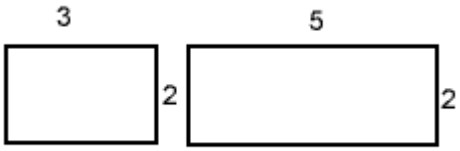
2. On a map 1 centimeter represents 100,000 centimeters. What is the length of a road in kilometers that measures 2.9 centimeters on the map?

3. A right triangle has perimeter 12 and sides x, (x + 1) and (x + 2). What is the area of the triangle?

4. A palindrome is a number which reads the same backwards as forwards (for example 101). What is the next greatest palindrome after 3443 ?

5. Chen donates 15 percent of his current salary to charity. If his pay is increased by 10 percent and he still continues to donate 15 percent of the salary, by what percentage do his charity contributions increase?

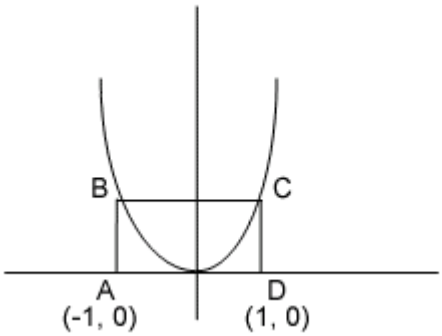
6. Joey starts reading at the top of page 103 and stops at the bottom of page 204. How mant pages has he read?



7. A rectangular box is made by putting together peices of the dimensions shown above. What is the volume of the resulting box?

8. $x^2 - y^2 = 9$, and $x - y = 1$. What is the value of $x + y$?

9. Sam's test scores are History 76, Geography 74, Math 92, English 81 and Chemistry 80. If the average (arithmetic mean) score is M, and the median score is m, what is the value of M-m ?



10. ABCD is a rectangle. Points B and C lie on the graph of $y = wx^2$, where w is a constant. If the perimeter of ABCD is 10, what is the value of w?

参考答案:

1.Correct Answer: 55

Explanation:

Time to be allotted = 20 x 45 seconds for the verbal and 80 x 30 seconds for the math questions. In seconds this is 900 + 2400 = 3300. Divide by 60 to get minutes = 55

2.Correct Answer: 2.9

Explanation:

This is a proportionality problem.

If 1 cm represents 100,000 cm

Then 2.9 cm represents (100,000/1) x 2.9 = 290,000 cm

Now convert to km (1km = 1000m = 1000x 100cm) by dividing by 100,000 = 2.9

3.Correct Answer: 6

Explanation:

x + (x + 1) + (x + 2) = 12

3x + 3 = 12; 3x = 9; x = 3

The sides are 3-4-5

The area = ½ x 4 x 3 = 6

4.Correct Answer: 3553

Explanation:

The next will be 3553. (If you went for 4004, you did not make the palindrome as small as possible)

5.Correct Answer: 10

Explanation:

If we take his current salary as 100 he donates 15.

His new salary is 110 and he donates (15/100) x 110 = 16.5

His contribution has gone up by 1.5

As a percentage of his original contribution this is (1.5/15) x 100 = 10

6.Correct Answer: 102

Explanation:

To find inclusive numbers take the differences and add 1

204 - 103 = 101; 101 + 1 = 102

7.Correct Answer: 30

Explanation:

Volume = length x breadth x height = 5 x 2 x 3 = 30

8.Correct Answer: 9

Explanation:

$x^2 - y^2 = (x + y)(x - y) = 9$

(x + y)(1) = 9; x + y = 9

9.Correct Answer: 0.6

Explanation:

To find the average add up the score and divide by the number of subjects.

76 + 74 + 92 + 81 + 80 = 403; 403/ 5 = 80.6 = M

To find the median, put the scores in ascending order and find the middle term:

74, 76, 80, 81, 92. The median = 80 = m

M - m = 80.6 - 80 = 0.6 (Grid in .6)

10.Correct Answer: 3

Explanation:

From the x-coordinates of points A and D we can work out the length of AD (2). Since BC will also be 2 we can find CD ½ (perimeter – AD + BC) =3

Hence the coordinates of point C are 1,3

Now we can find the value of w by substituting x = 1 and y = 3 in the equation $y = wx^2$; 3 = w.1; w = 3