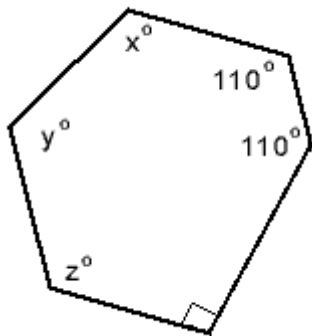


第三套

1. In a sequence of numbers the first number is 3 and each number after the first is 2 more than 3 times the preceding number. What is the fourth term in the sequence?
2. If the average of 3 and x is 5, and the average of 5 and y is 7, what is the average of x and y ?
3. A right circular cylinder has an volume of 81π . If the circumference of the base is 6π , what is the height?
4. Using the digits 1,2,5,9 exactly once in each number, what is the difference between the largest and the smallest number that can be formed?
5. How many numbers between 1 and 100 contain the digit 8?
6. If k is a positive integer, what is the smallest value for k to make $60k$ a perfect square?



7. What is the sum of x , y and z in the figure above?
8. The school library has 50 action adventure novels, 15 romances and 10 historical novels. Julie wants to take one of each type for her sick cousin to read. How many different choices of three books are available to her?
9. The fraction x/y is altered by decreasing x by 25 per cent and increasing y by 25 percent. The new fraction is what percent less than the original?
10. A CD player chooses a track at random from three discs each with 20 racks. What is the probability that it chooses track 2 of disc 2?

参考答案:

1. Correct Answer: 107

Explanation:

Second term = $3 \times 3 + 2 = 11$; Third term = $3 \times 11 + 2 = 35$; Fourth term = $3 \times 35 + 2 = 107$

2. Correct Answer: 8

Explanation:

If the average of 3 and $x = 5$, the total = 10, and $x = 10 - 3 = 7$

If the average of 5 and $y = 7$, the total = 14, and $y = 14 - 5 = 9$

The average of x and y is $7 + 9 / 2 = 8$

3. Correct Answer: 9

Explanation:

The volume of a cylinder = area of base \times height

$6\pi = \text{circumference} = 2\pi r$; $6/2 = r$

Area of base = $\pi r^2 = \pi \times 3 \times 3 = 9\pi$

$81\pi = 9\pi \times \text{height}$; height = 9

4. Correct Answer: 8262

Explanation:

The largest number is 9521

The smallest is 1259

The difference = 8262

5. Correct Answer: 19

Explanation:

The numbers containing 8 are:

8, 18, 28, 38, 48, 58, 68, 78, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 98

6. Correct Answer: 15

Explanation:

To find a perfect square we need the prime factors.

$60 = 2 \times 2 \times 3 \times 5$

To turn it into a perfect square we need to multiply by $3 \times 5 = 15$

(So that the prime factors are in groups of two = $2 \times 2 \times 3 \times 3 \times 5 \times 5$)

7. Correct Answer: 410

Explanation:

By drawing three lines inside the figure (from angle y to angles 110, 110 and 90) we can divide the figure into four triangles. Therefore the sum of the interior angles = $4 \times 180 = 720$

$x + y + z = 720 - 110 - 110 - 90 = 410$

8. Correct Answer: 7500

Explanation:

She has 50 choices of action books which can be combined with any of 15 romances. This gives us $50 \times 15 = 750$ combinations which in turn can be combined with any of 10 historical novels to give a total number of choices $750 \times 10 = 7500$

9. Correct Answer: 40

Explanation:

Decreasing x by 25 per cent gives $0.75x$

Increasing y by 25 percent gives $1.25y$

The new fraction is $0.75x/1.25y = 0.6x/y$

This is 0.4 less (= 40 percent)

10. Correct Answer: 1/60

Explanation:

Total number of tracks is 60. If one is chosen at random the probability is 1/60. This is very easy; don't be distracted by irrelevant information