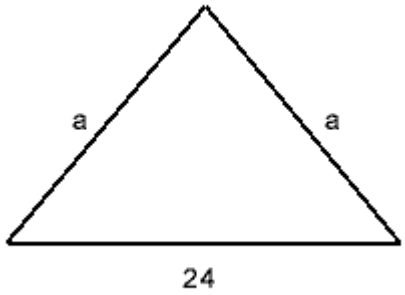
第十一套

1. The area of a rectangle with sides x and 3x, is how many times greater than the area of a right angled isosceles triangle with side x?

2. If $81 is to be divided among n people, where n > 1, so that each gets $x, where x is a whole number > 1, how many different values could there be for n?



(figure not to scale)

3. If the area of the triangle shown above is 108 square centimeters, what is its perimeter in centimeters?

4. A charity organisation sells greetings cards in packs costing $10 or $2.50 each. A total of 75 packs were sold at a fair for a total of $375. How many of the $2.50 packs were sold?

5. The length of a rectangle is 2/7 of the perimeter. What is the value of the diagonal of the rectangle if the perimeter is 14 units?

6. A = {A, B, C, D, E, F, G}

B = {0, 1, 2}

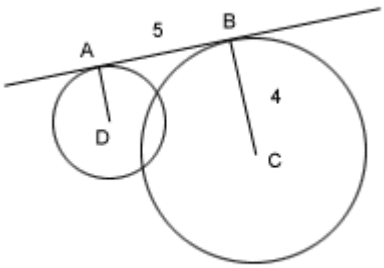
C = {1, 2, 3, 4, 5, 6, 7, 8, 9}

The filing system in an office requires each file to have an alphanumeric code name of the form abc. A, B and C are the sets from which a,b, and c must be chosen. How many possible code names are there?

7. A measuring cylinder is filled one third full with ethanol. A mixture of ethanol, water and propanol is used to fill the measuring flask to capacity. What fraction of the final mixture is ethanol?

8. The equation y = 6 is graphed on the same coordinate axes as the circle with center (4,4) and radius 3. One of the points of intersection of the line and the circle has x-coordinate 1.76. What is the x coordinate of the other point of intersection?

9. If a and b are positive integers, and $(ab^{3/2})^2 = 108$, what is the value of ab?



10. The line through AB is tangent to two circles with centers D and C and whose areas are in the ratio 4: 1

If AB = 5 and BC =4, what is the length of line segment DC (not shown)? Grid your answer correct to three significant figures.

SAT 数学填空题练习题 11 参考答案

1.Correct Answer: 6

Explanation:

The area of the rectangle is $3x^2$

Area of right isosceles triangle = ½ x^2

Divide the area of the rectangle by the area of the triangle

$3x^2 / ½ x^2 = 6$

2.Correct Answer: 3

Explanation:

n must be a factor if the result of dividing 81 by n is a whole number.

Factorize 81 to give factors of 9, 3, 27

Therefore n can take 3 different values

3.Correct Answer: 54

Explanation:

Draw out the figure and add a perpendicular height from the base.

Since area = ½ base x height, and area = 108

108 = 12 x height = 9

Now you need to recognize that each triangle formed by half the base, the height and the side marked

, is a 3-4-5 right triangle. Therefore

= 15

Perimeter of the large triangle = 24 + 15 + 15 = 54

4.Correct Answer: 50

Explanation:

Frame an equation. Let the number of $2.50 packs be n. the number of 410 packs sold = 75 - n.

Total cost = n (2.5) + (75-n)10

375 = 2.5n + 750 - 10n

7.5n = 375; n = 50

5.Correct Answer: 5

Explanation:

Half the perimeter = length + breadth = 7

The length = 2/7 x 14 = 4; the breadth = 7 - 4 = 3

The length and the breadth form the legs of a 3-4-5 right triangle with the diagonal of the rectangle forming the hypotenuse. So the diagonal = 5

6.Correct Answer: 189

Explanation:

We have a choice of 1/7 for a, 1/3 for b and 1/9 for c. Therefore we have 7 x 3 x 9 = 189 possible code names. (You multiply the choices because any one from a set can be combined with any from the other sets)

7.Correct Answer: 5/9

Explanation:

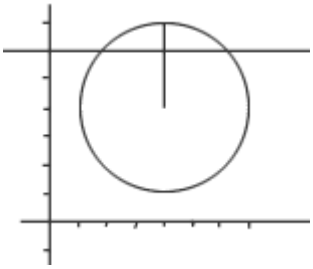
If one third is full, then 2/3 is empty initially. One third of the mixture that is to be added is ethanol.

Therefore we are adding 1/3 x 2/3 ethanol = 2/9

But the flask already has 1/3 ethanol. New fraction will be 1/3 + 2/9 = 5/9

8.Correct Answer: 6.24

Explanation:



Draw a sketch. The points of intersection will lie symmetrically: one will be x units to the right of the center of the circle and one will be x units to the left. The x-coordinate of the center of the circle is 4, and so 1.76 lies (4 – 1.76) = 2.24 units to the left and the other point will lie 2.24 units to the right = 4 + 2.24 = 6.24

9.Correct Answer: 6

Explanation:

First simplify by taking out the brackets: $a^2b^{6/2} = 108$; $a^2b^3 = 108$

Now we are stuck unless we realize that if a and b are both integers there is probably only one solution to this equation, which we should be able to find if we find the prime factors of 108.

108 = 2 x 2 x 3 x 3 x 3 x 3, and so a must be 2 and b must be 3. Hence, ab = 6

10.Correct Answer: 5.39

Explanation:

Angles DAB and ABC are right angles. Because the areas of the circles are in the ratio of 4:1 the radii must be in the ratio of √4:√1 which is 2: 1. We are told the radius (BC) of the larger circle is 4, hence, the radius of the smaller circle must be 2.

If we draw a line from D perpendicular to BC we divide ABCD into a rectangle and a right triangle. The right triangle has sides 5 (because it is equal to AB), 2 (half of BC), and DC. Using Pythagoras theorem we have $5^2 + 2^2 = DC^2$ DC = √29 = 5.3852 To three significant figures this is 5.39 (We can't grid in more anyway