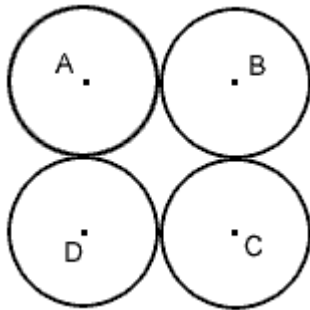# 第五套

1. On a number line point a has coordinate -4 and point B has coordinate 6. What is the coordinate of point C which is midway between A and B ?

2. 60 per cent of what number is equal to 45 per cent of 80?

3. If the sum of 7 consecutive numbers is 0, what is the greatest of these numbers?

4. How many cubes with volume 8 cubic units can be cut from a cube with a surface area of 96 square units?

5. If ab = 1, bc = 2 and ac = 8, what is the value of abc?

6. Four circles of diameter √2 are placed tangent ot each other as shown. What is the distance AC ?

7. What is the least positive integer k for which 15k is the cube of a number?

8. A factory was owned by three people X, Y and Z, each having an equal share. X sold half his share to Y. Z sold one quarter of his share to Y. What fraction did Y then own?

9. Two people set off by car on a rally and take the same route which is 25 miles long. If A drives at an average speed of 50 miles per hour, and B at an average speed of 60 miles per hour, how much longer in minutes will it take A to cover the course than it takes B ?

10. If f(x) = 3x – 2 and g(x) = 2x + 1. And if f(k) = g(k). What is the value of k?

参考答案:

1.Correct Answer: 1

Explanation:

The distance between the points on the number line is 10 units.

Mid-way will be five units from either end = -4 + 5 = 1

2.Correct Answer: 60

Explanation:

Express in math language

60/100 x n = 45/100 x 80

n = 45 x 80/60 = 60

3.Correct Answer: 3

Explanation:

If the sum of a series of numbers is zero, then there must be an equal number of positive and negative numbers on either side of zero. So in this case the series is

-3, -2, -1, 0, +1, +2, +3 and the greatest is 3.

4.Correct Answer: 8

Explanation:

The number of small cubes will be the volume of the large cube divided by the volume of the small cube.

To find the volume of the large cube, divide the surface area by 6, then take the square root of the result: this will give the side of the cube, which can then be cubed to give the volume.

96/6 = 16; side = 4; volume = 4 x 4 x 4

Now divide by the small cube volume (8). The number of cubes is 8.

5.Correct Answer: 4

Explanation:

If you multiply all the terms together you will get $a^2b^2c^2 = 16$

Take roots of both sides: abc = 4

6.Correct Answer: 2

Explanation:

AC is the diagonal of a square with side = diameter of a circle (sum of two radii).

The diagonal can be calculated if you take the side of the square as x, then the diagonal will be $x\sqrt{2}$.

(Because the diagonal is the hypotenuse of a 45-45-90 triangle).

In this case the side = $\sqrt{2}$, and the diagonal = $\sqrt{2} \times \sqrt{2} = 2$

7.Correct Answer: 225

Explanation:

The prime factors of a cube will be in groups of 3

The prime factors of 15 are 5 x 3

To convert into a cube we need to multiply by 5 x 5 x 3 x 3 = 225

8.Correct Answer: 7/12

Explanation:

Each person initially had 1/3

X sold ½ of 1/3 = 1/6 to Y

Z sold ¼ of 1/3 = 1/12 to Y

Y now owns 1/3 + 1/6 + 1/12 = (4 + 2 + 1)/12 = 7/12

9.Correct Answer: 5

Explanation:

Speed = distance/ time; time = distance/speed

A takes 25/50 hours (=30 minutes) to drive 25 miles at 50mph

B takes 25/60 hours to drive 25 miles at 60mph = (25/60)60 minutes = 25 minutes

So A takes 5 minutes longer

10.Correct Answer: 3

Explanation:

Find f(k) and g(k) and equate. $3k - 2 = 2k + 1$

Solving we have $k = 3$

This is very easy. If you got it wrong you might need someone to go over the basics of functions with you.