1. The centre of the circle is (10, -4). The point (2, -4) is inside the circle and (10, 14) is outside the circle. If the radius of the circle is ‘r’, an integer, how many possible values are there for ‘r’?
   A. 7
   B. 8
   C. 9
   D. 10
   E. 12

2. Alexa and Jasmine had a burger party on Sunday night and they had some leftovers. They decided to have the leftovers for dinner on Monday. The leftovers consist of 8 burgers, all with different sauces and 4 desserts. In how many different ways can Alexa and Jasmine eat leftovers if they eat 2 burgers each and 1 dessert?
   A. 720
   B. 1440
   C. 2640
   D. 4580
   E. 5040

3. In a country Z, 10% of the people do not have a diploma but have the job of their choice, and 25% of the people who do not have the job of their choice have a diploma. If 40% of the people have the job of their choice, what percent of the people have a diploma?
   A. 35%
   B. 45%
   C. 55%
   D. 65%
   E. 75%

4. If \( h \) is the product of the positive integers from 1 to 12, inclusive, and if \( a, b, c, d \) and \( e \) are positive integers such that \( h = 2^a 3^b 5^c 7^d 11^e \), then what is the value of \( a - b + c - d + e \)?
   A. 0
   B. 5
   C. 6
   D. 7
   E. 9

5. Michel leaves New Jersey by road for Las Vegas at 3 pm and travels at a constant speed of 100mph. After an hour, his friend Jimmy leaves Las Vegas for New Jersey at a constant speed of 45mph. The distance between them is 3000 miles. As they are travelling towards each other, they decided to meet. At what time will they meet?
   A. 12 pm
   B. 12 am
   C. 11 am
   D. 11 pm
   E. 1 pm
6. 30% of the employees in a factory are labourers and all the remaining employees are executives. The annual income of each labourer is $400. The annual income of each executive is $500. What is the average annual income of all the employees in the factory together?
   A. 400
   B. 425
   C. 450
   D. 470
   E. 500

7. If a junior lawyer receives a commission of 10% of the cases that he has booked in a month and the number of cases booked by the junior lawyer minus the junior’s commission was $25200. What is the commission received by the junior lawyer that month?
   A. 2520
   B. 2800
   C. 26000
   D. 27000
   E. 28000

8. If the triangle PQR shown above is a right angled triangle at Q and the shaded area is one half the area of the triangle PQR, then what is the length of the line segment PS?
   A. $\frac{1}{2}d$
   B. $\sqrt{2c^2 + a^2}$
   C. $\sqrt{d^2 - 3b^2}$
   D. $\sqrt{a^2 + b^2}$
   E. $\sqrt{b^2 + d^2}$
9. If the function \( g(x) \) is defined as \( g(x) = -\left(-\frac{1}{2^x}\right) \) where “\( x \)” is a positive integer, then the sum of the first 10 terms will be?
   A. Between -1/2 and -1/4
   B. Between -1/4 and -1/8
   C. Between 1/8 and 1/4
   D. Between 1/4 and 1/2
   E. Between 1/2 and 1

10. In the above regular octagon (8-sided polygon), the shaded region is a square and it’s area is 4 square units, then what is the area of the whole regular octagon?
   A. 4
   B. 8
   C. 16
   D. 8+8\(\sqrt{2}\)
   E. 16+16\(\sqrt{2}\)