Questions 10:

The graphs of the two equations $y = a\ x^2 + b\ x + c$ and $y = A\ x^2 + B\ x + C$, such that a and A have different signs and that the quantities $b^2 - 4\ a\ c$ and $B^2 - 4\ A\ C$ are both negative,

A. intersect at two points
B. intersect at one point
C. do not intersect
D. none of the above

Questions 11:

For x greater than or equal to zero and less than or equal to 2 pi, sin x and cos x are both decreasing on the intervals

A. (0 , pi/2)
B. (pi/2 , pi)
C. (pi , 3 pi / 2)
D. (3 pi / 2 , 2 pi)

Questions 12:

The three solutions of the equation f(x) = 0 are -2, 0, and 3. Therefore, the three solutions of the equation f(x - 2) = 0 are

A. - 4, -2, and 1
B. -2, 0 and 3
C. 4, 2, and 5
D. 0, 2 and 5

Questions 13:

The three solutions of the equation f(x) = 0 are - 4, 8, and 11. Therefore, the three solutions of the equation f(2 x) = 0 are

A. - 2, 4, and 11/2
B. - 8, 16 and 22
C. - 4, 8, and 11
D. 2, 19 / 2 and 7 / 2

Questions 14:

A school committee consists of 2 teachers and 4 students. The number of different committees that can be formed from 5 teachers and 10 students is

A. 10
B. 15
C. 2100
D. 8

Questions 15:

Five different books (A, B, C, D and E) are to be arranged on a shelf. Books C and D are to be arranged first and second starting from the right of the shelf. The number of different orders in which books A, B and E may be arranged is

A. 5!
B. 3!
C. 2!
D. 3! * 2!

Questions 16:

The mean of a data set is equal to 10 and its standard deviation is equal to 1. If we add 5 to each data value, then the mean and standard deviation become

A. mean = 15 , standard deviation = 6
B. mean = 10 , standard deviation = 6
C. mean = 15 , standard deviation = 1
D. mean = 10 , standard deviation = 1

Questions 17:

The exam scores of all 500 students were recorded and it was determined that these scores were normally distributed. If Jane's score is 0.8 standard deviation above the mean, then how many, to the nearest unit, students scored above Jane?

A. 394
B. 250
C. 400
D. 106

Questions 18:

If f(x) is an odd function, then | f(x) | is

A. an odd function
B. an even function
C. neither odd nor even
D. even and odd

Questions 19:

The period of | sin (3x) | is

A. 2 pi
B. 2 pi / 3
C. pi / 3
D. 3 pi

Questions 20:

When a metallic ball bearing is placed inside a cylindrical container, of radius 2 cm, the height of the water, inside the container, increases by 0.6 cm. The radius, to the nearest tenth of a centimeter, of the ball bearing is

A. 1 cm
B. 1.2 cm
C. 2 cm
D. 0.6 cm