1. Find

Solution:

Now,

Integrating by parts,

. Find

Solution:

Let,

Differentiating both sides w.r.t

2. Write the sum of degree and order of the DE

Solution:

3. If and are two unit vectors, then prove that , where is the angle between them.

Solution:

As, and are two unit vectors, So, and

4. Find the direction cosines of the following line .

Solution:

Given line:

this can be re – written as

5. A bag contains 1 red and 3 white balls. Find the probability distribution of the number of red balls if 2 balls are drawn at random from the bag one-by-one without replacement.

Solution:

and

So,

6. Two cards are drawn at random from a pack of 52 cards one-by-one without replacement. What is the probability of getting first card red and second card Jack?

Solution:

7. Find

Solution:

8. Find the general solution of the following differential equation

Solution:

Let

Differentiating both sides w.r.t

. Find the particular solution of the following differential equation, given that

Solution:

is of the form

General Solution corresponding to DE of this kind:

9. If , , , then show that .

Solution:

As

…

As

…

Dividing equation by

So,

Putting value of in equation

and as , where , are the angles between vectors.