MTH282

1. \(\alpha + \beta = \beta +\alpha \) is said to be .....under addition of vectors.
   Answer: commutative

2. At any point of the path x=3cosa? ¡t,y=3 sina? ¡t, z=4t, what is the Normal vector?
   Answer: \\(1/25 (-3 cosa?it i-3 sina? ¡t j)\\)

3. If \(Gaf—= a€—5ta€—^2 i + tj - t^3 k\) and \ (F éf— = sin ti é€“ cost j\), what is \(dldt (G \\times F af—)\) ?
   Answer: \\((t^3 sin t— 3t^2 cos t)i-(t^3 cos a?i(t-3t^2 sin a?it) j+(5t^2 sina?;a€—t-sina?iaE—t— 11t cost) k\\)a€— a€— ae—

4. A stone moves along the path \(x=t^3+1 ,y=t^3\), \(z=2t+5\), where t denote time. What is the component of \((dp)/dt\) ?
   Answer: 3i+2j+2k

5. Under vector addition \(\alpha+\beta+\gamma = \gamma+\beta+\alpha \) is called the law.
   Answer: associative

6. Suppose that \(\alpha=2i-3j+k\) and \ (\Deta=7i-5j+k\), find a unit vector perpendicular to \(\alpha\) and \(\deta) respectively.
   Answer: \\{\\frac{2i+5j+11k }{5\\sqrt(6)}\\)

7. ……..vector with reference to a point X to origin O is the vector \(OX \)used to specify the true position of X with respect to O.
   Answer: location

8. Vectors with same direction, same a sense (same arrow) but different magnitude are called
   Answer: like vectors

9. The principal value of the argument of \ ((1+iâ's3)(1-i)\) is
   Answer: \\(\\fra{\\pi}{12}\\)

10. At any point of the path x=3cosâ? ¡t, y=3sinâ? ¡t,z=4t, find the Tangent vector. \n
    Answer: -3 sinâ? ¡t i+3 cosâ? ¡t j+4k

11. ……..is any quantity that has both a magnitude and a direction.
    Answer: vector quantity

12. \(\alpha + \beta = \beta +\alpha \) is said to be under addition of vectors.
    Answer: commutative

13. Given \(\alpha=i+2j+3k\), \(\beta=2i+j-k\) find \(\alpha times \beta \)
    Answer: -5i+7j-3k

14. ……is an example of scalar quantity.
    Answer: mass

15. \(\bar{\alpha}\dot{\beta} \) is a…….
Answer: vector

16. A vector whose magnitude is unit is called……
Answer: unit vectors

17. Suppose that the coordinates of R be (3,4,12), what are the direction cosines of\ ((OR)\) a*f*—?
Answer: \\(\\frac{3}{13}, \\frac{4}{13}, \\frac{12}{13}\\)

18. If \(\alpha=3i-j+2k,\), \(\beta =2i+j-k\) and \ (\gamma L.=i-2j+2k,\) find \(\alpha \times \beta \times \gamma\).
Answer: 24i+7j-5k

19. Suppose that the coordinates of R be (3,4,12), what is \((OR)\) â*f*—?
Answer: 3i+4j-12k

20. If \(G â*f*—= ä€-5tä€—^2 i + tj – t^3 k\) and \(F â*f*— = sin ti â€“ cost j\), what is \(d/dt (G. F â*f*-)\) ?
Answer: \\(100t^3+2t+ 6t^5\\)

21. Solve for 2 if \((z—2)^2+16=0\).
Answer: \\(2\\pm 4i)

22.